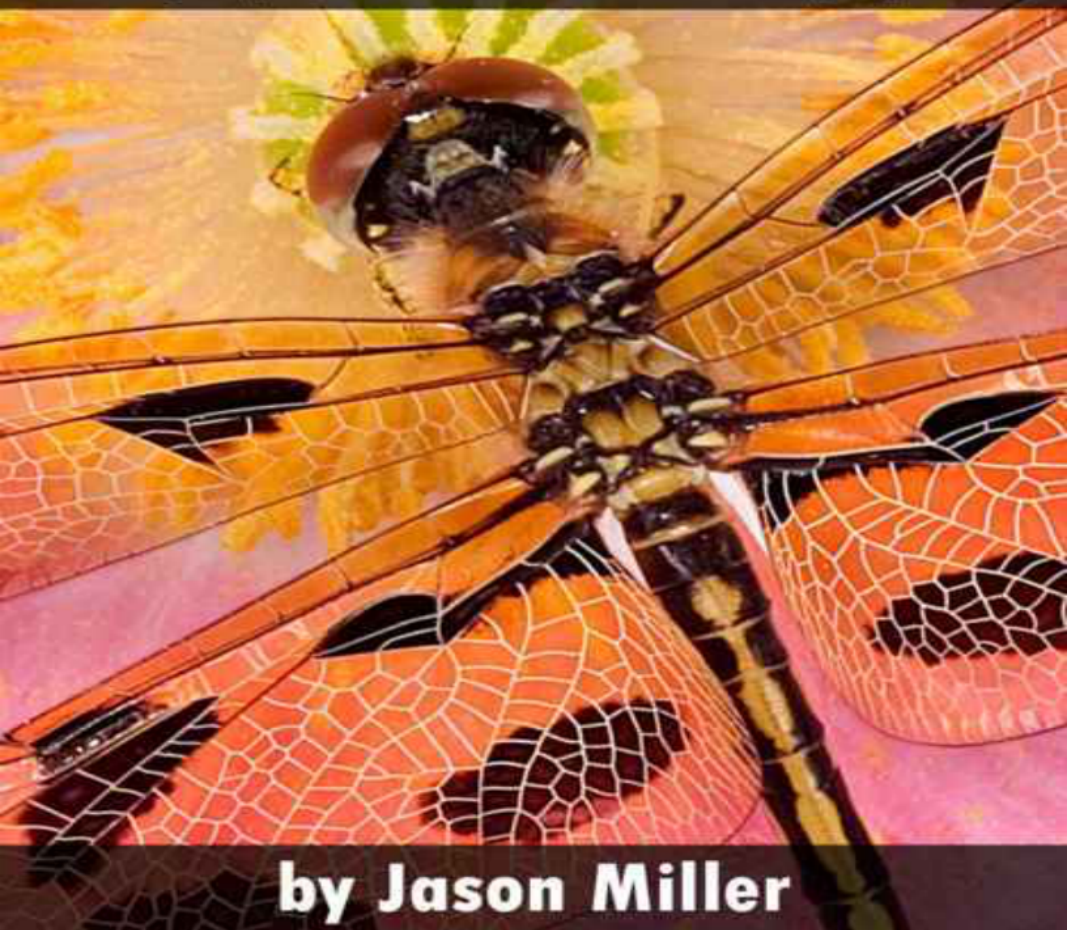


MASTERING MACRO PHOTOGRAPHY

Ideas, Tips, Tutorials & DIY Equipment



by Jason Miller

Mastering Macro Photography

Ideas, Tips, Tutorials & DIY
Equipment

Published by:



www.seeinginmacro.com

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1. What is Macro Photography?

Macro photography is one of the most challenging forms of photography. It opens up a whole new world for photographers to explore and encourages them to see the world with a different perspective. If we had to define 'macro photography', we would say that it is the art of making small objects look big. It is about bringing out the beauty in the objects that we often take for granted in our daily lives

Whilst the world of macro photography is typically associated to images of insects, flowers and plants, macro photographers are not limited to these subjects only. When you step into the macro photography world, you will soon discover that there is another side to macro photography – one that is abstract and creative.

This could involve capturing the exciting textures and patterns of an object and turning the small details of the object into the focus of attention. For example, the texture of a sliced fruit or the patterns on a butterfly wing or even the wrinkles on a person.

Before you start your macro photography journey, we must warn you first – macro photography is extremely addictive. You will be locked into a life long journey of learning and you will be constantly honing your photographer's eye, patience and perseverance.

So we wish you the best of luck and hope that you will enjoy the journey - it is going to be an exciting and rewarding one!



Image 1 - What is Macro Photography?

2. Is Macro Photography Different to Close-Up Photography?

Up until now, we have intentionally steered clear of the technical definition of ‘macro photography’ to avoid putting you to sleep. It is not an interesting topic to cover so we will try to make this as painless as possible for you.

In the macro photography world, you will hear many debates on the differences between macro photography and close up photography. It is a hot topic and more than likely, you will be sucked into this debate at some point in your journey.

It is important to keep in the back of your mind the differences between macro photography and close up photography. These photos may look very similar to you however when we start to drill down into the technical components, they are actually different.

Macro photography generally requires a 1:1 or higher magnification ratio between the object image that you are photographing and the real object. What this means is that if you are photographing a bee that is 1 inch in size, this bee will appear as 1 inch or greater on your camera’s sensor. If the object image is smaller than the real object, this will then be categorized as close up photography.

Whether you achieve the magnification ratio of 1:1 or higher is going to be dependent on the photography equipment that you use. We will cover this in a later chapter.

So does it really matter? For us - No. But for some other people - Yes. In this book, we will be using the terms interchangeably. While it is important to know the technical differences between macro photography and close up photography, we believe that it is far more important for a photographer to get out in the field, shoot, learn and enjoy themselves.

So, don’t let the ‘macro photography or close up photography’ debates confuse you or stop you from entering the macro photography world.



Image 2 - Macro Photography vs Close-Up

3. What is Magnification Ratio?

Many people do not fully understand what ‘magnification ratio’ means and more than often, it can be quite confusing as well. So to make sure you have a good grasp of it, we wanted to cover ‘magnification ratio’ in a little more detail and then teach you a simple method to determine the magnification ratio of your own equipment. It’ll be quick, easy and fun.

Macro photographers are always keen to know what ‘magnification ratio’ that they are achieving with their equipment because a higher magnification ratio will ultimately allow them to obtain closer photos of their photography subjects. More importantly, after learning about the way to calculate your magnification ratio, you will then be able to speak to other macro photographers and tell them about the magnification ratio of your equipment!

So what does a magnification ratio of 1:1 mean? To re-cap what we said previously, this basically means that when you take a photo of a butterfly, the projected image of the butterfly on the camera’s sensor will be the actual size of the butterfly.

To help us understand this, let’s associate some numbers to the examples. Let us assume that the camera’s sensor is 26mm in length. When 26mm of the actual image is projected onto the camera’s 26mm sensor, then this results in a magnification ratio of 1:1. When 52mm of the actual image is squeezed in to fit onto the camera’s 26mm sensor, then this results in a magnification ratio of 1:2. This means that your actual image size/magnification has been reduced to half. When 13mm of the actual image is projected onto the camera’s 26mm sensor, then this results in a magnification ratio of 2:1. This ultimately means that your actual image has doubled in size.

4. How to Calculate Your Magnification Ratio

There are a number of different ways to calculate your magnification ratio. Some people will suggest using a simple math formula to calculate the magnification ratio. However, you need to be aware that the formula have its limitations and do not always work for every type of macro photography equipment setup. The math formula method has confused many people in the past and as such we have chosen not to cover this method in this book.

Instead, we are sharing this hands-on method of calculating your magnification ratio for your macro photography setup. It will work for every simple or complex macro gear setup you have. It is extremely fun and you can really see and measure the magnification change right in front of your eyes!

What is Required?

- Camera
- Ruler
- Length size of your camera's sensor (You can easily obtain this from the manufacturer's website – or just Google your camera model + 'sensor size'. eg. Nikon D80 sensor size)

Tutorial Steps

1. Lay your ruler on a flat surface and have your camera vertically above it.
2. Aim at the ruler and try to locate the closest height where you can still focus onto the ruler. You will need to move your camera closer to the ruler while trying to focus onto the ruler. There will be a point where you will just not be able to focus on the ruler anymore. You want to locate the point right before that happens.
3. When you have located the last point where the ruler is still in focus, take a photo of the measurement on the ruler.
4. Look at your photo and count how many millimeter (mm) of the ruler is contained within the photo
5. Compare that measurement to the length size of your camera's sensor. For example, the sensor size on the manufacturer's website may be 37mm (length) x 24mm (width) and the photo of the ruler shows approximately 37mm in length. This means that you have 1:1 magnification ratio (life size). If the photo of the ruler shows approximately 18.5mm, then you have 2:1 magnification ratio (twice the life size).

Use the following formula to help you calculate the magnification ratio –

- $\text{Magnification} = \text{Sensor Width} / \# \text{ of mm captured in your photo}$

Hands-on Example

Photograph of a ruler with a macro lens – Approximately 37mm in length.

First Scenario

Equipment –

- Nikon D700
- Nikkor 105mm f2.8 macro lens



Image 3 - Photograph of a ruler with a macro lens. Approximately 37mm in length.

The above photo was captured with a macro lens only. Applying our formula of –

Magnification = Sensor Width / # of mm captured in your photo

Magnification = 37mm / 37mm = 1

Therefore an approximate magnification ratio of 1:1.

Second Scenario

Equipment –

- Nikon D700
- Nikkor 105mm f2.8 macro lens
- 68mm of extension tubes



**Image 4 - Photograph of a ruler with a macro lens + 68mm extension tubes.
Approximately 17mm in length.**

The above photo was captured with a macro lens and 68mm of extension tubes. Applying our formula –

Magnification = Sensor Width / # of mm captured in your photo

Magnification = $37\text{mm} / 17\text{mm} = 2.17$

Therefore an approximate magnification ratio of 2:1

After completing this hands-on task, you should have an idea of whether you are actually shooting in ‘macro’ or not. If you are not achieving a ratio of 1:1, that’s OK! Don’t stress – there are so many other ways to get you closer to the 1:1 ratio. We will share some of these lesser known secrets with you in the equipment chapter.

As always... Don’t forget that it is more important to get out there, learn about your camera and enhance your macro photography knowledge and techniques rather than worrying about your magnification ratio.

5. What Type of Macro Photographer Are You?

Before you start your macro photography journey, you should take a few moments to consider what type of macro photographer you are. This may sound silly at first, but this will help you to determine the type of photos that you should take and the photography techniques that you will need to use.

These are the two types of macro photographers –

1. Scientific macro photographer
2. Creative macro photographer

Scientific Macro Photographer

Macro photography for scientific purposes is very different to creative macro photography. As a scientific macro photographer, the main purpose of your photo is to document the event, fauna (insects, animals, etc) or flora (flowers, plants, etc). For example, you may be photographing all the different butterfly species in your geographic location. Therefore, the primary purpose of your photo is to support you or a scientist in identifying each of the species type.

As a scientific macro photographer, you should try to achieve the following in your photos –

- Include the environment / surroundings along with your subject. You do not need to worry about background clutter.
- Use a small aperture (eg. f/16) to achieve a deep field of depth. This will ensure that your subject and the surroundings are in focus.
- Capture the subject at the correct angle so that it can be used for identification purposes. It is important for you to learn about your subject beforehand so that you know the angle or the anatomy that could uniquely identify the subject. For example, it may be a specific pattern or color that is on your subject that will identify it
- Use your flash to freeze motion.
- Avoid any post-processing of your photo. Do not enhance or alter the original photo as an imperfection on your subject could tell a whole different story.

Creative Macro Photographer

When it comes to creative macro photography, these macro photos usually have an artistic element to them. This is what makes creative macro photography so interesting. A photo of the same subject could be taken in so many different ways and could look very different each time a photo is taken.

In creating a creative macro photo, the photographer will take a number of different factors into consideration. We will cover some of these techniques in more detail in the next chapter, however, as a sneak peek, the following are some of the things that are usually considered before the shutter button is pressed –

- Depth of field
- Composition
- Color Harmony
- Lighting

6. What You Need To Consider Before Pressing the Shutter Button

The Importance of Depth of Field in Macro Photography

As a macro photographer, it is very important to understand what depth of field is and how it can affect your photos. The depth of field technique has been used in macro photography for many years. Depth of field is the distance between the nearest and farthest objects in a scene that appear acceptably sharp in an image.

When talking about depth of field, people will generally use two different terms to describe your photo–

1. Narrow / Shallow depth of field
2. Wide / Deep depth of field

By composing a photo that has a shallow depth of field, the areas within the image will be less in focus. This will draw a viewer's attention to a specific area of the photo that is still in focus. Although it is not too common in creative macro photography, a photographer could also adjust the camera settings to achieve a deep depth of field. This will result in photo that is likely to have more areas that are more in focus.



Image 5 - Importance of Depth of Field

How to Control Depth of Field

So how do you control the depth of field in your photo? There are a number of ways and this includes the following -

- Aperture
- Focal Length
- Camera Distance from subject

Aperture

Aperture is one of the factors that will affect the depth of field in your image. Aperture is the size of the opening in your lens. Generally, when using a larger aperture or smaller f/stop number (eg. F2.8), your image will be less in focus (eg. shallow depth of field). When you use a smaller aperture or a larger f/stop number (eg. F22), your image will become more in focus (eg. deep depth of field).

Focal Length

Focal length is the other factor that will affect the depth of field in your image. The longer your focal length (eg. a lens zoomed to 100mm), the less areas of your image will be in focus (shallow depth of field). On the other hand, if you use a wider focal length (a lens zoomed out to 24mm), more areas of your image will be in focus.

Camera Distance from Subject

The distance between your subject and camera will also affect the depth of field in your image. Generally, the closer you are to your subject, the less of your image will be in focus (shallow depth of field). If you then move further away from your subject, you will notice that the image will become more in focus (deep depth of field).

When considering the depth of field in your photos, there is no hard and fast rule in macro photography that states that your images should have a shallow depth of field or a deep depth of field. At the end of the day, it comes down to the composition that you are after as a photographer. You just need to be aware that different depth of field within an image will tell a completely different story to your viewers.

The Importance of Color Harmony in Macro Photography

Colors play an important role in your photos. As you know, the human eye can see and process a wide spectrum of colors. Even without any formal education in arts or design, the human eye and brain can 'sense' whether specific combination of colors will work together.

Instead of relying purely on your senses to determine whether colors will work together or not, we want to equip you with some basic color theories so that you know how to achieve 'color harmony' in your macro photos. When we talk about color harmony, we are referring to the set of colors that will work harmoniously together to achieve an image that is pleasing to the eye. These are the type of photos that you should strive to capture.

How to Achieve Color Harmony in Your Macro Photos

Introducing the Color Wheel

The color wheel was invented by Isaac Newton and it is a tool that will help you to determine whether colors are in harmony. Without boring you with all the details of the color wheel, what I want you to remember is that there are three primary colors – Red, Yellow and Blue. When you start to add different mixtures of these primary colors together, this will result in the creation of a new color. These colors are known as secondary colors. For example, adding more yellow to red will help to achieve the orange color. When you mix the primary color with the secondary color, it will then result in the creation of another new color. These new colors are called tertiary colors.



Image 6 - The Color Wheel

Using Monochromatic Colors

The first way to achieve color harmony is through the use of monochromatic colors. Don't let the big long word scare you. 'Mono' basically means 'Single' or 'One' and 'Chromatic' means 'Color'. As such, to achieve monochromatic colors in your photo, you will use different tones, tints and shades of a single color.

The color wheel can help you to achieve monochromatic colors. First, you will need to select a color from the color wheel. Next you will

need to add more black, white or grey color to your chosen color. By using a combination of these colors, you will achieve monochromatic colors.

A photo created with monochromatic colors will create a visually appealing image that is balanced. However, the photo will lack color contrast.

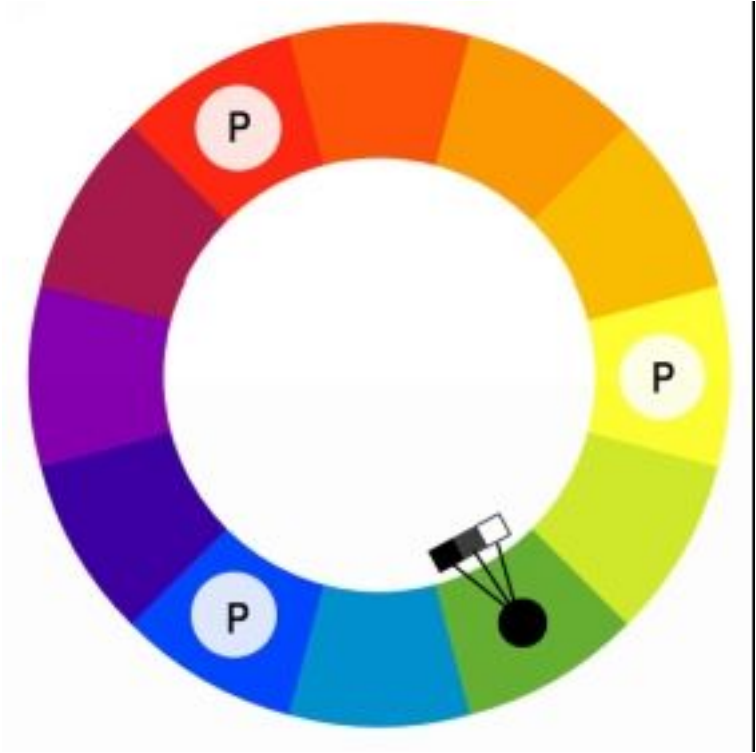


Image 7 - Monochromatic Colors on Color Wheel



Image 8 - Monochromatic Color Example

Using Analogous Colors

The second way to achieve color harmony is through the use of analogous colors. Once again do not be intimidated by the term. 'Analogous colors' relates to the selection of a group of colors that are similar and blend well together.

The color wheel can help you to select your analogous colors. To achieve this, you must first select the main color from the color wheel. You will then need to select 2 adjacent colors to the main color. You can select one color on either side or 2 colors from one side of the main color.

As macro photographers, we are quite lucky. Analogous colors appear everywhere in nature. If you think about the leaves on the trees during the early autumn season, you will notice that the leaves are a mixture of green, yellow and red colors.

A photo created with analogous colors will result in an image that is richer than the monochromatic colors. However, it may sometimes not look as vibrant as it still lacks color contrast.

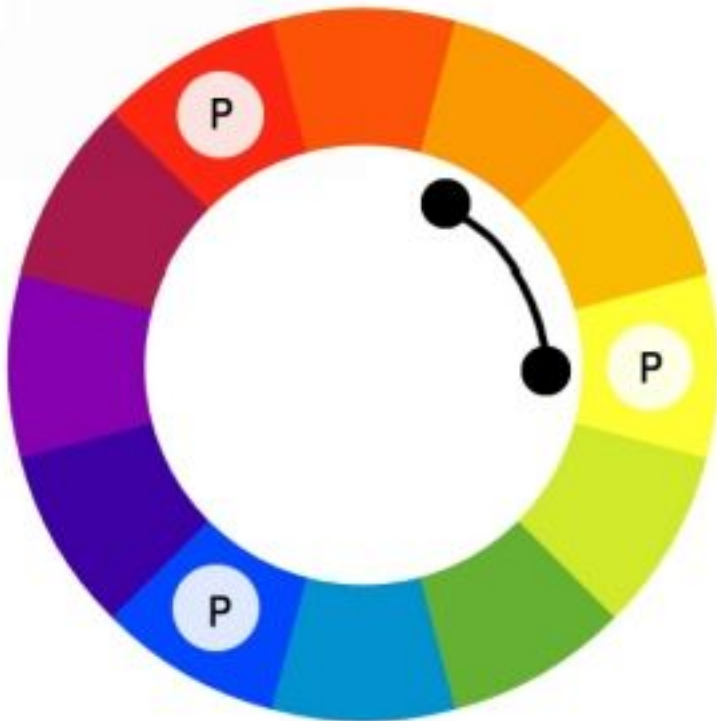


Image 9 - Analogous Colors on Color Wheel



Image 10 - Analogous Colors Example

Using Complementary Colors

The third way to achieve color harmony is through the use of complementary colors. This is the selection of colors that when combined together, will provide a high contrast image.

The color wheel can help you to select your complementary colors. First you need to select a main color from the color wheel. Next, you

will then use the color that is directly opposite of the selected color. A photo created with complementary colors will result in an image that is high contrast and vibrant. However, as you will probably experience, it can be quite difficult to balance the colors.

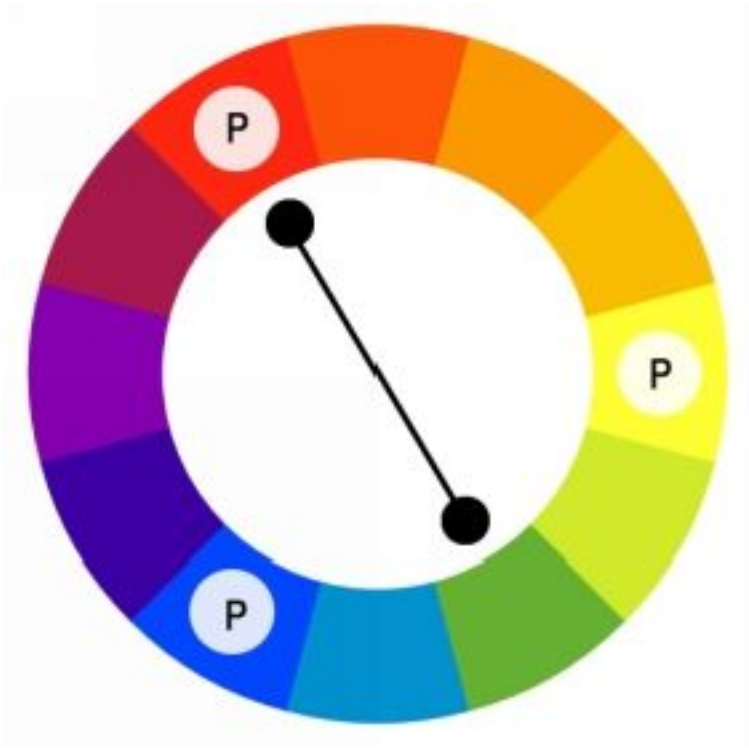


Image 11 - Complementary Colors on Color Wheel



Image 12 - Complementary Colors Example



Image 13 - Complementary Colors Example

Using Triadic Colors

The fourth way to achieve color harmony is through the use of triadic colors. As the name 'triad' suggests, this method involves using three different colors.

To achieve triadic colors, you first select the key color from the color wheel. You will then need to select another two colors that are evenly spaced from the key color. If you have done this correctly, this will eventually form a triangle on the color wheel.

A photo that includes triadic colors will help to achieve a vibrant image with high contrast. However, when comparing this to complementary colors, it does not offer as much contrast.

Now that you know how to achieve color harmony, make sure you keep it in the back of your mind when you compose your photo as it will help you to create photos that are pleasing to the eye.

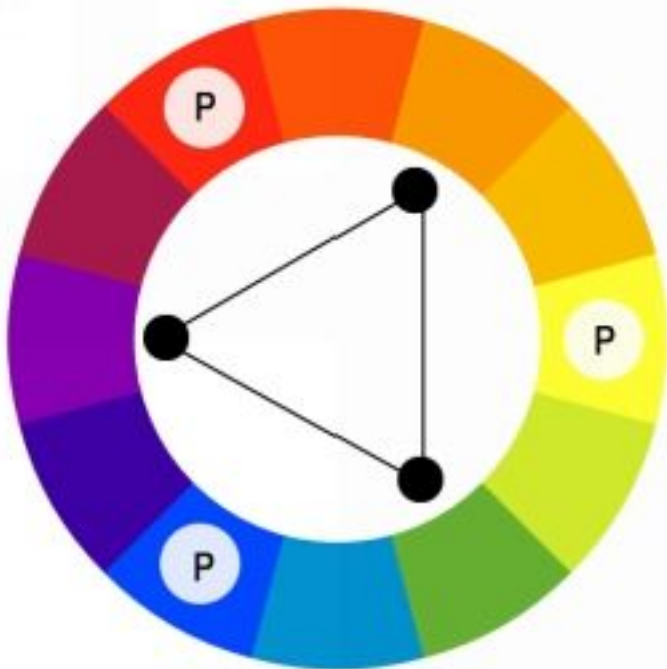


Image 14 - Triadic Colors on Color Wheel



Image 15 - Triadic Colors Example



Image 16 - Triadic Colors Example

The Importance of Composition in Macro Photography

Before we start talking about composition, try to recall the best photo that you have seen in your life. Once you have an image of it in your head, ask yourself why the photo is so impressive? If you were able to name a few reasons, then you are definitely one step ahead of the game. If you were unable to list any reasons, don't be too down – it can be quite difficult to determine what makes a good photo. Sometimes it just boils down to a 'feeling' that you get when you look at the photo. This 'feeling' that you get is often the result of good photo composition.

Before we introduce you to some basic composition rules, let's stop and think about what composition really means. You hear the term, "Photo Composition" tossed around a lot, but what does it really mean? Perhaps it's best to change our frame of reference – or focus, if you will – for just a moment, to the topic of music. You know that songs are often called compositions. This refers to the individual pieces – the rhythm, melody, etc... – that work together to make up a complete song. In a similar manner, the individual pieces of a picture work together to make up its unique composition.

Remember, macro photography is an art form, just like creating music. To create memorable photos, you must consider the individual pieces that are being captured in the photograph, in order for that photo to have truly balanced, eye-capturing composition.

Understanding and Applying Composition Rules

Learning how to compose a photo is a fundamental skill in macro photography. Photographers who do not know how to compose their photos will always be stuck with taking 'good' photos only. So, if you want to take your photography to the next level and start taking amazing photos, you must always consider the composition before you press the shutter button.

In this chapter, we are going to introduce you to some basic composition rules so that you can put them into practice and improve your photography skills –

The Rule of Thirds



Image 17 - Rule of Thirds

The rule of thirds is a technique that can be applied in macro photography. This technique will require you to split your frame or viewfinder into nine separate areas by imagining two equally spaced vertical and two horizontal lines across your image.

Research has shown that the human eyes are naturally drawn to the areas where the vertical and horizontal lines intersect. These points create tension, energy and interest in the composition. As such, to maximize the impact of your photos, the subject or the area of interest should always be placed onto one of these intersecting points.

By following the rule of thirds, you will avoid placing your subject or area of interest in the middle of the frame. It is important to know that there is only one exception to this rule. If you are planning to crop your image into a square frame, your subject or area of interest can be placed in the middle.

Clean Background



Image 18 - Clean Background

Before you take your photo, you should check that the background of your photo will not contain any objects that might distract someone from your subject of interest. This commonly includes a branch/stick or another flower that is in the background of your photo. For situations like this, you may wish to remove these objects before you take your photo. If you are unable to remove the object, you should try shooting from another angle to hide the distracting object.

Additionally, you can control the depth of field to blur out any distractions that are in the background. To achieve this, you need to use a wide aperture (eg. F2.8) setting so that your photo has a shallow depth of field.

A Unique Perspective

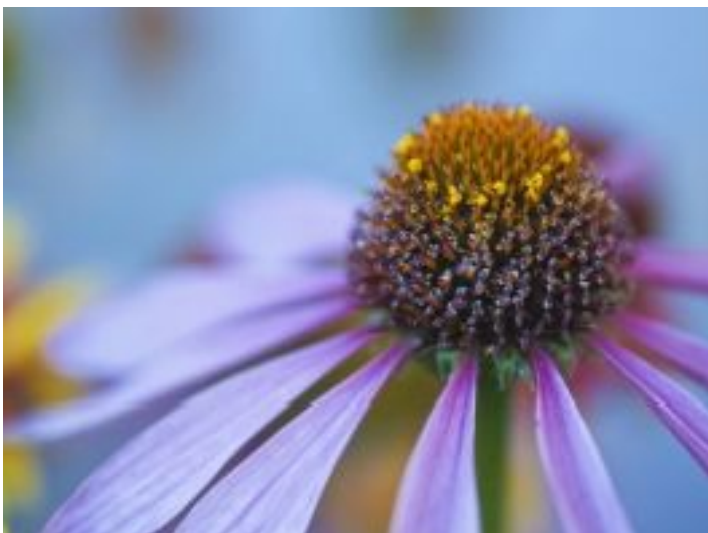


Image 19 - Unique Perspective

Taking your photos from a unique viewpoint is another macro photography technique that you should try to use more often.

Imagine yourself admiring the flowers in your garden. When you are looking at these flowers, you are always looking from a top-down perspective. As such, if you take a photo from the same viewpoint, it is not unique and doesn't captivate the attention of your viewers.

By making a minor adjustment and getting down to the level of your subject, you provide a different perspective to your viewer – one which that they are not used to seeing. This helps to capture the attention of your viewers and draw them into the macro photography world.

Additionally, simply changing the angle a bit or skewing your point of view can go a long way in improving composition in photography.

Yes, it does take some time to get used to shooting with a more angular approach, but the payoff is photographs that really captivate the viewer's eyes and mind.

Using Diagonal Lines



Image 20 - Diagonal Lines

When there are straight 'lines' (eg. a branch, horizontal or vertical texture) going through your photos, there is a simple macro photography tip that you can follow to enhance your photo. Rather than keeping those lines as vertical or horizontal, consider rotating your camera slightly so that these lines run diagonally across your frame. This minor adjustment can usually make a big difference between a good photo and a brilliant photo.

Additionally, try to avoid having these 'lines' come out from the corners of your photos. It is usually more balanced and more aesthetically pleasing to the eye if the lines exit the frame just below

or above the corners of your image.

Perception of Movement



Image 21 - Perception of Movement

In macro photography of insects, it is usually ideal to leave some space in front of your subject. Eg. If the dragonfly is flying towards the right, you should leave some space on the right so that it gives the viewer the perception of movement. Additionally, this space gives the viewer a glimpse into the world in front of the insect and helps to draw your viewer into the macro photography world.

Patterns



Image 22 - Patterns

The human eye is naturally drawn to patterns. These patterns can be created by colors, shapes or even lines. The repeated element in the photo will lure the viewer in and create an image that is aesthetically pleasing to the viewer. When taking your macro photos, keep an eye out for breaks in the pattern as well – they can be just as powerful.

Texture



Image 23 - Texture

Textures are very interesting to the eye and adds a new dimension to the photo. Not only are you showing what your subject looks like to the viewer, but you are also asking them to feel it. By including texture in your photos, it triggers an emotion and a feeling. These textures can be emphasized by using backlighting or side lighting to create the highlights and shadows.

In macro photography, you can also make use of contrasting surfaces to add a level of depth to your photo. For example, you could photograph a smooth leaf on a rough tree bark. The contrasting textures will accentuate the textures and help your viewers to 'feel' the story of your photo.

Framing



Image 24 - Framing

Framing is commonly used by photographers to draw a viewer's attention to their subject. It achieves this by introducing a 'frame' to block all the noises and distractions within the surroundings of your subject. For example, in the photo above the two leaves in the foreground acts as a frame for the subject and helps to block all the distractions that may exist in the background. When looking at this photo, the viewer will automatically focus on the main subject.

7. Should You Be a Rule Breaker?

We all know that rules, laws and guidelines exist in nearly every aspect of our lives. When you drive your car, you must obey the laws of the road. When the time comes to pay your taxes, you have to pony up the cash that the government says you owe. But what about the composition of your photos? Do macro photographers have to follow the photography composition rules and guidelines, or are you able to simply shoot what you want, when you want, using any settings that you want? These are questions that warrant a definite answer.

To keep this short, in our opinion, we don't believe that it is wise to simply ignore or break all the composition rules on a regular basis. We understand that there are times when some of these rules must be broken - not every rule of composition is necessarily going to apply to every situation. However, until you know the rules well, and are used to applying them when you shoot macro photos, you will never really know the right times to "break the rules". So if you are new to macro photography, we would urge you to learn the composition rules and learn to apply them to your shots first before attempting to break any of them.

8. What Macro Photography Equipment Do You Need?

What Camera Do You Need?



Image 25 - DSLR Camera

The camera has come a very long way. Gone are the days where cameras are only for professional photographers. In macro photography, photographers generally use digital SLR cameras (dSLR). With the aim of keeping this simple, we will avoid boring you with the technical details of what a dSLR is and how it operates.

Essentially, the DSLR camera consists of a camera body which allows you to use different types of interchangeable lenses. They also have a larger image sensor than your typical 'Point and Shoot' cameras. So this means that you will be able to take higher quality photos. More importantly, these cameras will provide you with the level of control that you need to be creative when you start your macro photography journey.

Needless to say, once you have a DSLR camera and provided that you have the appropriate lens, you can use the camera for other forms of photography as well Eg. Landscape, Portraits, etc.

How to Choose a Camera

There are currently a number of DSLR camera brands out in the market. Some of these contenders include Canon, Nikon and Pentax. Each of these brands have a wide range of DSLR cameras to cater for

the Entry, Semi-Professional and Professional level. Unfortunately this makes the decision much harder for you!

When looking for a DSLR camera, you may wish to consider the functions below. Nowadays, these are usually standard functions but it is best to check that the DSLR camera has the following capabilities –

- Burst / Continuous High Speed Shooting mode (This is important in macro photography where you may need to take many shots of your subject – you may only end up with a few good ones)
- Built in sensor cleaner
- Ability to shoot in RAW format
- Live view
- Ability to attach a battery grip to extend the battery life of the camera

If you are on a budget or if you are new to the photography world, our advice to you is to compromise on the camera body and look into buying a high quality macro lens instead. Many amazing photographers out there are still using a macro lens on an entry level camera. Just remember that buying the most expensive camera will not automatically make you a better photographer. Unfortunately, it does take time and plenty of practice.

What Lens Do You Need?



Image 26 - Lenses

There are many different lenses for DSLR cameras. However, when focusing on macro lenses only, there usually two main types of lenses –

1. Zoom lenses with macro feature (eg. 70-300mm telephoto zoom lens with macro)
2. Fixed focal length / Prime macro lenses (eg. 105mm prime macro lens)

Both of these lenses are capable of achieving amazing results.

How to Choose a Lens

When choosing the next DSLR macro lens to include into your macro photography equipment collection, it is important that you choose one

that caters for your needs. To determine the appropriate macro lens to buy, you should think about the photography subjects that you may want to photograph.

Like camera bodies, there are also millions of different lenses out in the market. So choosing a macro lens can sometimes be difficult due to the large range of lenses. If you are intending to take photos of moving subjects such as insects, then it is advisable to purchase a macro photography lens that will allow you to photograph your subject from a little further away. This will help to reduce potential shadows caused by your lens when you are too close to your subject. More importantly, this will ensure that you do not disturb them, thereby allowing you to take the perfect shot. Sometimes a little distance between you and your subject may be necessary as well, especially if your subject bites or stings.

If you think your passion is in studio close-up photography (of still objects) or flower photography, it is possible for you to use a telephoto zoom lens. This will be more versatile for you as the lens can be used for other forms of photography. However, some of these telephoto lenses may not be able to achieve the required 1:1 ratio magnification. As such, your images will be technically classified as 'close up photography' rather than 'macro photography'.

Macro photography lenses that we recommend are usually prime lenses (fixed focal lengths – eg. 50mm, 105mm, etc). Generally the optics within these type macro lenses is far better than the telephoto zoom lenses. This means that you can take sharper photos with the prime macro photography lenses. Unfortunately, given the superior quality of the prime macro lenses, they are often much more expensive too. However, the good news is that once you have added a macro lens to your macro photography equipment, it will be your companion forever.

A range of macro lenses are currently available in the market to cater for your needs. There is no surprise that the leaders within this market are Canon and Nikon. Tamron and Sigma are quickly establishing themselves as a reputable brand in this space as well. We have compiled a list of some of the most popular macro photography lenses below for you.

Macro Photography Macro Lenses for Nikon

- Nikon 40mm f/2.8G AF-S DX Micro
- Nikon 60mm f/2.8G AF-S ED Micro
- Nikon 85mm f/3.5G AF-S DX ED VR Micro
- Nikon 105mm f/2.8G AF-S IF-ED VR Micro

Macro Photography Macro Lenses for Canon

- Canon EF 50mm f/2.5 compact macro lens
- Canon EF-S 60mm f/2.8 Macro USM
- Canon MP-E 65mm f/2.8 1-5X
- Canon EF 100mm f/2.8L-Macro-IS-USM-Lens
- Canon EF 180mm f/3.5L Macro USM

Third party Macro Photography Macro Lens for Nikon/Canon

- Sigma 70mm f/2.8 EX DG Macro
- Sigma 105mm f/2.8 EX DG OS HSM Macro
- Tamron 60mm f/2 SP AF Di II Macro
- Tamron 90mm f/2.8 SP AF Di Macro

We tend to recommend our friends to get a macro lens around the 70-100mm as their first lens. If you are on a tight budget, the 50mm lenses will be suitable for most of your work on the field and in the studio when combined with the reverse lens technique. You can read more about the technique below in the lens reversal ring adapter section.

What are Extension Tubes?



Image 27 - Extension Tubes

Extension tubes are an economical way to start your macro photography journey. These extension tubes have no optics in them and are hollow ring adapters that fit between your DSLR and your lens and they allow you to go beyond the minimum focusing distance of your lens. This basically means that you can get closer to your subject without losing focus and this will ultimately have the effect of magnifying your subject.

Including an extension tubes set into your daily macro photography equipment will help you get closer to your subject. However, there are some downsides to using extension tubes. One major downside is that the amount of light that hits your camera's sensor is reduced. Secondly, you will lose the ability to focus on infinity.

These tubes can be used in combination with any lenses, however many macro photographers use them in combination with a macro lens. When coupled with a macro lens, this will achieve a magnification that is greater than the 1:1 magnification. This will allow the photographer to take a closer shot of the subject. Extension tubes are easy to use and can be purchased as a set/kit from photography stores.

How to Choose a Set of Extension Tubes

Extension tubes often come in a set of 3 tubes – each one with different lengths. Before you purchase your extension tubes, it is important to know about the different types of extension tubes.

1. Manual Extension Tubes

Manual extension tubes are not designed with any circuitry or mechanical coupling components in them. This means that you will lose the capability to auto focus and auto TTL exposure on your camera. As such, these are generally the cheaper type of extension tubes. For most macro photographers, this is not a major issue as they are manually focusing.

2. Auto Extension Tubes

Auto extension tubes are designed with the circuitry and mechanical coupling components in them. When using the extension tubes in combination with the lens, the auto focus and auto TTL exposure functions will be maintained. When purchasing an extension tube set, ensure that you choose one that has a compatible mount to your camera brand eg. Nikon mount, Canon mount, etc. Otherwise, you will be disappointed as you will not be able to connect the tubes to your camera and lens.

The extension tubes that we use and recommend to our friends are Kenko Auto Extension Tubes. When used against a 100mm macro lens, it will have the approximate effect of doubling your magnification ratio so that you can obtain bigger than life size images. You will find that there are cheaper brands out in the market – just be really careful as we have come across some fairly poor quality extension tubes. You will want to get one that feels sturdy/secure and durable.

What is a Lens Reversal Ring Adapter?



Image 28 - Lens Reversal Ring Adapter

Not many people know that they can get started in macro photography without a macro lens. Reversing your kit lens on your DSLR camera is one of the most economical way to enter the world of macro photography.

A lens reversal ring is a vital macro photography equipment if you do not have a macro lens. As the name suggests, the lens reversal ring allows you to mount your current lens backwards onto your camera. It is essentially a converter/adapter that screws onto the end of your lens and will allow you to mount the lens the other way around onto your camera.

Reversing your lens has the effect of turning it into a close up lens. Any lens can be used with the reversal ring, however you can typically achieve better results by using a prime wide angle lens (eg. a single focus length wide angle lens). A wide angle lens will magnify your subject quite significantly.

For example, reverse mounting a 20mm prime wide angle lens could achieve close to 4:1 magnification ratio (eg. 4 times the size of your subject). If you then combine this with the extension tubes, it will further increase the magnification! While there are benefits in reversing your current lens, there are also some drawbacks that you will need to be aware of. Obviously your auto controls such as the capability to auto focus and aperture settings will not operate anymore.

Many people have had really good results with combining a 50mm prime lens with the reversing ring. We have seen some stunning

photos from some of these photographers!

Advantages

- Economical and can be done with any type of lenses
- Gives you a chance to 'see in macro' and explore the world of macro photography
- Achieves great results as it lets you focus really close up to your subject

Disadvantages

- As your lens is mounted backwards, you will lose most of the auto functions (eg. Capability to automatically adjust our aperture and auto focus). All these will need to be manually controlled.
- This is generally not a long term solution – dust may get into your lens since it is mounted backwards.
- Difficult to focus due to the increase in magnification – any small movement will be magnified.
- A tripod will sometimes be required to minimize any unwanted movements and help with focusing.

How to Choose a Lens Reversal Ring Adapter

To mount your current lens in reverse you will need a lens reversal ring adapter. You can easily find a lens reversal ring adapter to fit most cameras (Eg. Canon or Nikon). As they come in different sizes, you will need to ensure that you choose one that matches with the diameter of your lens. In order to find a suitable lens reversal ring adapter you will need to know the following –

1) Camera brand

2) Lens diameter (Note: This is printed onto the bottom/side of your camera lens. This is the diameter of your front lens. Alternatively, if you look in the back/inside of your camera lens cap, you will see the diameter printed there.)

For example, if you had a Nikon with a lens with a diameter of 67mm, you will need to buy a lens reversal adapter ring for a Nikon with a 67mm diameter. Please make sure you don't get this confused with the length of your camera lens eg. 200mm f2.8 lens. They are completely different things.

What are Close-Up Filters / Diopters ?



Image 29 - Close-Up Filter / Diopter

Macro photography has sometimes been associated to expensive macro photography equipment. However, that is not always the case. One piece of inexpensive equipment that you can add to your macro photography kit is a close up filter set. In contrast to the extension tubes, these close up filters have an optical/glass component to them and they operate like the UV filters that are screwed onto the end of your lens. These close up filters usually come in a set and will provide you with a number of different magnification options (eg. +1, +2, +4, +10). If you choose to, you can even screw them all together to further increase your magnification.

How to Choose a Lens Diopter / Close Up Filter

In order to select the appropriate close up filter to fit your lens, you will need to know the diameter of your lens (eg. 52mm, 58mm, 62mm, 67mm, 72mm or 77mm). This is printed onto the bottom/side of your camera lens. Alternatively you can also find the diameter printed onto the inside of your lens cap.

Since the close up filters have a glass/optical component to them, it may degrade the quality of your photos if you use a poor quality close up filter. So when choosing a close up filter, it is recommended to use a popular and highly regarded brand. Generally, as a rule of thumb, the quality of a close up filter is directly proportional to the cost of it. For example, the more expensive the close up filter is, the higher the quality of the close up filter. Sounds like everything else in life right?

What are Bellows?

Bellows are like extension tubes. These bellows sit between your camera and your camera lens. They are made out of a flexible material that will allow you to contract and expand the length of the bellows. At first sight, the bellows may look intimidating and may even look like an antique piece of photography equipment. However, it has some benefits over the extension tubes. Unlike extension tubes (where the lengths are fixed), the macro bellows will allow you to adjust the length between the camera and the lens. As mentioned previously, by moving the lens further away from the camera, this will ultimately allow you to focus much closer to your subject.

How to Choose Bellows

Most bellows are very similar. If you are keen on buying a bellows unit, you could consider one which has an in-built focusing rail. This will allow you to fine tune your focus and will make life a little easier when you are trying to find the right focus.

What are Flash Units (Built-In, Hot-Shoe, Ring & Dual)?

The macro photography equipment that will get you out of trouble in low light condition is the flash unit. In macro photography and close up photography, a flash unit will help to light up your subject so that you can take the perfect shot. Using the right flash unit is important as this could eliminate the need to use a tripod.

There are a number of flash units out in the market currently and it is important to know the differences between all the different types of flash units before you decide on the appropriate one for you.

1. Built in camera flash



Image 30 - Built-in camera flash

Whilst the built in flash on your camera may be suitable for your general photography, it is not appropriate for macro or close up photography. The lighting from these flashes are generally too direct and harsh. As such, the camera's built in flash should be used as a last resort for macro or close up photography.

The in-built flash unit should not be used in macro photography and should only be used as a last resort for macro photography.

2. Hot shoe flash



Image 31 - Hot shoe flash

These hot shoe electronic flashes are external flash units that fit onto the top of your DSLR camera. These flashes can generally be used for all types of photography. It is possible to use a hot shoe flash unit for macro photography however it may sometimes be difficult to achieve the right lighting. These hot shoe flash units are usually more suitable for indoor close up photography. Having said that, many people have taken great outdoor macro photos whilst using a hot shoe flash.

If you are planning to use a hot shoe flash, as a word of advice, you should always use a flash diffuser to ensure that you achieve a soft lighting on your subject. Otherwise the lighting is just going to be too harsh. We will cover diffusers in more details in one of the sections below.

Additionally, we highly recommend that you choose a hot shoe flash that is compatible with a wireless flash trigger. If you choose to use a hot shoe flash for macro photography, you should also obtain a separate wireless flash trigger as well. This will provide you with the flexibility that you need for the lighting in your macro photos.

3. Macro ring light / flash



Image 32 - Macro ring flash

These macro ring light / flash units were originally made for dental photography however they are now commonly used in macro photography. A macro ring flash is a circular flash unit that is mounted to the end of your lens. They evenly light up your subject and provide a subject that is shadowless. As such, these are suitable to be used in poor light condition. As a side note, you can actually see cameras with these flash units in most of the forensic / police investigation TV series eg. Dexter

Keep in mind that some macro photographers may find the macro ring flash unit restrictive as it does not allow them to use the lighting creatively.

How to Choose a Macro Ring Light / Flash

It is important to know that there are two types of macro ring lights / flashes out in the market currently. In this section, we have combined them together for simplicity, but you need to be aware that there is a difference between a macro ring light and a macro ring flash.

Firstly, the macro ring light is a more economical version of the macro ring flash. The light from a macro ring light are usually generated by a number of LED lights. Whereas, the light from macro ring flashes are much more akin to the type of flashes on your in-built camera. So what does this mean? Depending on what you are photographing, the LED lights from a macro ring light may not be strong enough or fast enough. To give you an example, if you were to take a photo of a water droplet with a macro ring light, it is likely that you will see the light reflection in your water droplet. However, with a macro ring flash, you will be able to set the strength of the flash and the speed of the flash so that you can achieve a photo that will not have the flash

reflection in the water droplet photo.

4. Double / Dual / Twin macro flashes



Image 33 - Twin macro flashes

The double / dual / twin macro flash units are the ultimate flash for all macro photographers. This unit is very similar to the circular lighting provided by the macro ring flash. Instead of a single circular flash unit, two flash units (very similar to mini hot shoe flashes) are mounted around the lens and they can be moved around in a circular motion.

One benefit of the double macro flash unit is that the flash units can be controlled individually. This ultimately allows a photographer to be more creative with their lighting. As with our previous advice, it is always important to use a diffuser with your flashes to ensure you have nice diffused and soft lighting.

What is a Flash Diffuser?



Image 34 - Flash Diffuser (Softbox)

As you know, photography is all about lighting. Photographers prefer lighting that are natural and try everything in their power to avoid lighting that are harsh. As such, when it comes to using their flash units, they often use a flash diffuser. These diffusers help to spread the light so that it does not look as direct and harsh. A diffuser will allow us to achieve soft diffused lighting.

How to Choose a Flash Diffuser

There are so many different kinds of these flash diffusers and they come in many different shapes and sizes. Some are like a cap which you place over the top of your flash unit. However, for macro photography, we would recommend that you use a softbox. The softbox is made out of a light material and will fit over the top of your flash. They can be carried around easily and some can even be folded up. What you will find at the front of the softbox is a white piece of material that will help to diffuse the flash light even further.

What is a Tripod?



Image 35 - Tripod

As a photographer you know the importance of having the right gear on hand for all of your photo shoots. It all starts, of course, with the right DSLR camera. Then there are lenses and other essential gear to think about. One thing that you don't want to overlook, in your efforts to assemble the ultimate collection of photographic gear, however, is the tripod. Many people think that all tripods are pretty much the same. Upon a bit of investigation, however, you will soon find that there are many different types and models to choose from.

It is important to choose a good tripod to add to your macro photography equipment. A good tripod will last a lifetime and will help you to achieve sharper photos.

When you are capturing your subject with a hand-held camera, any minor movement will be magnified and will likely result in a blurry photo. To ensure a sharp photo is taken, a tripod should be used to reduce any potential movement.

A tripod can be very useful when photographing inanimate objects such as flowers, plants and water droplets. In situations where insects/bugs are involved, you will need to consider the speed of these critters. For fast moving subjects, the tripod may not be suitable as it may be difficult to quickly move into position to capture the perfect moment.

As such, it is also important to ensure that the tripod is lightweight and durable. Look for a tripod that can be easily carried with you on all your exciting adventures and placed into position within moments.

of using it. For a light tripod, we recommend choosing a professional tripod that is made out of carbon fibre. Make sure you check out the tripods by 'Manfrotto'.

Additionally, if you take photos that are very close to the ground, you will need to choose a tripod that allows the tripod's legs to bend or fold all the way out so that it can reach the lower grounds.

How to Choose a Tripod

When comparing the various models available, you should consider 3 things – portability, stability and price. If you are on a budget, then you will have to settle for a tripod that is less stable and portable. If you are after something that is extremely portable and stable, then you will have to be prepared to pay a much higher price for the tripod.

Portability

In regards to portability, there are a few things you need to consider. Are you planning to carry the tripod out with you? If you are, then you will need to find a tripod that can be collapsed/folded into a small size so that you can carry it in your backpack.

When considering portability, you should also consider the weight of the tripod. Tripods that are made out of carbon fiber are usually much lighter.

Stability

There is a balance between portability and stability. Usually, the more stable your tripod, the less portable it is. This is due to the fact that stable tripods are much heavier. Building the tripod in such a way will result in less vibrations or sway in the legs when the wind blows. If you didn't know, these vibrations and swaying in the legs will cause blurry photos.

Additionally, you want to ensure that the tripod that you purchase will be able to support your camera and lens. There is a maximum weight for each tripod – so make sure you check this before buying your tripod.

Price

As always, the more portable and the more stable your tripod is, the more expensive it is going to be. Tripods can range from \$20 through to \$600. If you are on a budget or if you are after something more for the short term, you should then purchase one of the cheaper tripods and work within its limitations. If you are looking for a longer term tripod and there is a real need for you to have an extremely stable tripod, you should definitely consider one of the professional carbon fiber tripods.

At the end of the day, you need to consider the scenarios/situations that you will be using the tripod in. If you are not using it in harsh weather conditions (eg. where there are strong winds), then you can possibly get away with buying a tripod that is less stable. This will ultimately mean a less expensive tripod.

What is a Macro Focusing Rail?



Image 36 - Macro focusing rail

A focusing rail mounts to the bottom of the camera so that we can move the camera forwards or backwards in very small increments. It will allow you to fine tune your focus point by moving the camera in a systematic way. The camera is mounted onto the macro focusing rail plate and this plate is then mounted onto your tripod. Rather than moving your camera by hand to find the spot where you can achieve a good focus on your subject, you can now adjust a number of knobs on the focusing rail plate to move the camera forwards/backwards or even sideways in small increments. As a word of warning, you will find a range of focusing rails out in the market. For better quality and higher precision ones, you can often see them go for a few hundred dollars.

These macro focusing rails are also used by macro photographers when they use the focus stacking technique. We will talk more about this cool technique in a later chapter.

How to Choose a Macro Focusing Rail

When choosing a macro focusing rail, you should consider the following –

- Solid Built
- Whether the knobs will allow you to make small and fine adjustments

- Ability to lock the rail position
- Ease of attaching to camera/lens

9. Comparing the Close-Up Filter, Reversing Lens Adapter, Extension Tubes & Different Combinations

In the previous chapter, we introduced you to the Close-Up Filter, Reversing Lens Adapter and Extension Tubes. It is important to note that macro photographers will usually combine these different macro equipment to achieve even greater magnification. For example, you can combine the extension tubes with the reverse lens technique or you could combine your macro lens with the macro extension tubes and close-up filters.

In order to give you a better understanding of the capabilities of each of the macro photography equipment and the different combinations that you can create, here are some example photos. Pay close attention to how much closer you can get to the subject when using each of the different equipment and the different kind of combinations.

50mm Lens Only



Image 37 - 50mm Lens Only

50mm Lens with Close-Up Filters



Image 38 - 50mm Lens With + 1 Close-Up Filter



Image 39 - 50mm Lens With + 1 & + 2 Close-Up Filters



Image 40 - 50mm Lens With +1, +2 & +4 Close-Up Filters

50mm Reversed Lens



Image 41 - 50mm with Reversed Lens Adapter

50mm Lens with Full Set Extension Tubes



Image 42 - 50mm Lens with Full Set Extension Tubes

50mm Reversed Lens with Full Set Extension Tubes



Image 43 - 50mm Reversed Lens with Full Set Extension Tubes

10. So What Equipment Do You REALLY Need?

There's a phrase by Doug Bartlow that you should remember: "No matter how sophisticated the camera, the photographer is still the one that makes the picture." Okay, repeat that a few times in your head, until you have it memorized as your mantra.

So what does that quote really mean? Well, let's break the concept behind this quote down a bit and see how it applies to all of us who have a passion for photography. Even if you've only just recently purchased your first DSLR, and are still a little bit wet behind the ears, we think that once you understand what this quote really means, you'll have even more inspiration for pursuing your photography passion than ever before.

A Few Words on Photography Equipment

All you have to do is look online or at the local photography shop to see that there are some pretty sweet cameras on the market these days. And when you factor in some of the other important photography equipment, like macro lenses, tripods and carrying cases, it's easy to get overwhelmed by the price that must be paid in order to have all the latest and greatest photography gear at your beck and call. But if you harken back to the quote, you know that you don't necessarily have to own the most expensive, cutting edge camera in order to capture amazing, beautiful photographs.

Here's the deal: High end cameras are great! And having the best gear is wonderful. But you don't have to fret if you can't afford the higher end gear. Think about all of the ground-breaking photographs that were taken and published well before the digital photography revolution. Some shots that ended up becoming magazine covers, posters or even album covers were taken on cameras that were much less sophisticated than today's cheapest DSLRs.

What we're getting at here is the fact that amazing photographs were most definitely being snapped every single day, well before today's high end cameras were even conceived of. This is good news to all of us who may not be able to afford the latest, cutting edge DSLR camera. We know that it is absolutely possible to take unbelievable photographs, regardless of the sophistication or expensive price tag of our cameras!

In the previous chapter, you saw that it is possible to enjoy macro photography without having a macro lens. If you are still saving up for that macro lens,

there are so many other different ways for you to get started in macro photography. Your macro photography journey could look a little like this -

1. Close-Up Filters – Start by using a set of close up filters with your existing lens. While it is unlikely that you will achieve a 1:1 magnification ratio, at least you are familiarizing yourself with operating the camera, learning how to compose your photos and understanding some of the common issues of working within a magnified environment.
1. 50mm Lens with Reversing Lens Adapter – Once you have familiarize yourself with your camera and have consistently applied some of composition rules, you are then ready to move onto the reversed lens technique where you will spend most of your time understanding the limitations of the technique and equipment.
1. Auto Extension Tubes – When you become unsatisfied with the magnification that you are achieving with the 50mm lens with reversing lens adapter, you are then ready to include an auto extension tube into your macro photography equipment. Combining this with the reverse lens technique will allow you to get even closer to your subject.
1. Macro Lens – There will be a time where you will become unsatisfied with the magnification that you are achieving with the auto extension tubes and reverse lens technique. When that time comes, we hope that you have finally

saved up enough to purchase a macro lens. Once you purchase a macro lens, you can then utilize and combine all the different equipment that you have to achieve an even greater magnification!

Having said all the above, you may be so satisfied with the non-traditional methods of macro photography that you may choose not to even purchase a macro lens anymore! The journey is going to be different for everyone.



Image 44 - Photography gear

It's All About YOU Being Behind the Camera

Now that we've discussed the heavier topic of photography equipment, and how you don't need to own the best gear to take great photographs, let's talk about what really makes a photograph great. Yes, it's true that composition, lighting and the actual subject being photographed are important. But most important of all is the person behind the camera – YOU!

You see, photography is an art form. Just as musicians (at least the really good ones) seek to develop their own voice or sound, photographers should do the same. Your approach to macro photography – the angles you choose, the approach you take, and the subjects that you choose to photograph – are all uniquely yours. You aren't just taking pictures; you are telling your story – sharing your vision of an isolated moment in time with the world.

Yes, it may take you time to become technically proficient, and you'll definitely take more bad photos than good ones in your early outings (don't worry, though, this is true for ALL photographers). But after you hone your skill set and become comfortable with shooting according to your own unique style, you'll realize that it doesn't matter if you're taking photographs with a hundred dollar camera or a model that costs several thousand dollars. The real magic behind your photographs comes from you; your creativity, your passion and your desire to share your vision of the world, with the world.

Best of luck to you as you follow the path to pursuing your passion. We know that you are on the cusp of capturing some macro photos that will absolutely

dazzle your audience!



Image 45 - It's all about you!

11. Macro Photography on a Budget – DIY Macro Photography Equipment

How to Make a String Tripod

A tripod is one of the items that is high on every macro photographers' wish list. Unfortunately, not everyone owns a tripod and even if you do own a tripod, sometimes you do not want to carry it with you on your photography expeditions. So this DIY string tripod tutorial will show you how you can make your very own string tripod (or image stabilizer) for your camera with just a few dollars. It's inexpensive and fits in your pocket!

What is Required?

- A Bolt - 1/4" diameter
- String (one that doesn't stretch – eg. Nylon)
- Washer



Image 46 - What You Need For A String Tripod

Tutorial Steps

1. Cut the length of the string so that it is approximately your height
2. Tie one end of the string to the bolt



Image 47 - Knot Around the Bolt

1. Tie the other end of string to the washer



Image 48 - Knot on the Other End of String

How to Use

1. Screw the bolt into the bottom of your camera (where the tripod / quick release plate of the tripod would usually screw into)
2. Drop the washer onto the ground and step onto the washer
3. Bring the camera up towards your face until there is some tension in the string. The string should be taut / tight. This will help you to hold the camera steady.
4. Compose and take the shot!

How to Make a Flash Diffuser

This tutorial will tell you how you can create one on your own DIY flash diffuser, for next to nothing...

What Is Required?

- An aluminum can (eg. Coke / Beer can)
- Plastic milk bottle – the translucent plastic is what you will need
- Tape
- Scissors, box cutter and can opener

Tutorial Steps

1. Cut off the top and the bottom of the aluminum can. We used a can opener for the top and a box cutter for the bottom. For the top of the can, we made a number of cuts into the top of the can so that it can open up to fit our flash unit.



Image 49 - Top of Can Opened



Image 50 - Use a Box Cutter to Open the Bottom of the Can

1. Cut the milk bottle to size. The aim is to have the translucent plastic of the milk bottle fit over the end of the can. Depending on the type and size of the milk bottle, this may be as simple as cutting off the top of the milk bottle. Otherwise, you will need to cut the translucent plastic milk bottle into a flat sheet. You can then wrap and tape the sheet across the opening of the can.



Image 51 - Translucent Milk Bottle Cut to Size

1. Tape the translucent plastic of the milk bottle onto the end of the can
2. You may choose to tape the edges of the other end of the can so that you do not cut yourself
3. Place the flash unit (hot-shoe flash or built-in flash) into the

other opening of the can and secure it by compressing the end of the can.



Image 52 - DIY Flash Diffuser

1. You may also choose to tape the can onto your flash unit to further secure it.

How to Make a Light Box / Mini Studio

A photography light box can be created at home easily. It can be used for all your indoor live-action macro or close-up photos.

What is Required?

- A cardboard box
- Box cutter & scissors
- Thin white cloth / tissue wrapping paper
- White poster board paper
- Ruler
- Pen / Pencil
- Tape

Tutorial Steps

1. Place the box on its side and tape the bottom of the cardboard box down (this is where the two flaps of the cardboard box come together)
2. With your pen / pencil mark a 1" (2.5cm) border on the edge on the top and side faces of the box



Image 53 - Mark Border on Box

1. Use the box cutter and cut along the marked lines



Image 54 - Cut Box with Box Cutter

1. The cardboard box will now have a window on the top and the two sides



Image 55 - Box with Windows

1. Cut the tissue paper for each of the window / hole.
2. Tape the tissue paper to the outside of the window of the box



Image 56 - Box with Wrapping Tissue Paper Windows



Image 57 - Inside of Box

1. Cut the white poster board paper so that it's the same width of the box. The aim is for the poster board paper to cover the back and the bottom of the box. The poster paper should curl/bend smoothly from the bottom surface to the back surface of the box. This will form a seamless white background.



Image 58 - Inside of DIY Lightbox

1. The poster board paper should be taped down. You may choose to use double sided tape for this. Alternatively, you can tape the top corners of the paper. Note: Some poster board paper may already have a sticky strip on the top of the paper.
2. You will need to add two light sources outside the left and right side of the window to light up your light box. Experiment with the different angles to achieve the appropriate composition you are after.



Image 59 – DIY Lightbox in Action

How to Make a Macro Ring Light

Here is one of the simplest DIY tutorial you will ever come across on creating your very own 'macro ring light'. It doesn't require you to perform any sophisticated cutting, drilling or even soldering of wires. It's so simple you wouldn't believe it...

What Is Required?

- 8 LED key ring lights
- Velcro strip (The length needs to be long enough to go around your lens)
- Velcro dots



Image 60 - How to Make a Macro Ring Light

Tutorial Steps

1. Remove the key rings that are attached to each of the LED key ring lights.
2. Wrap the strip of Velcro around the end of your lens
3. Cut the Velcro strip to size when it has made a full circle around the lens
4. Stick the Velcro dots onto the LED key ring lights. Alternatively you can cut out small Velcro strips that will fit your LED key ring lights



Image 61 - Key Ring LED Light with Velcro Dot

1. If you are not using pre-cut Velcro dots, apply double sided tape to the back of the small Velcro strips that you have cut out and then stick it onto the back of the LED key ring light
2. Wrap the cut out strip of Velcro around the end of the lens and ensure that it is stuck on securely



Image 62 - Macro Lens with Velcro Strip

1. Stick the LED key ring lights onto the Velcro strip around the camera lens.
2. Turn each of the LED key ring lights ON. Voila!
For more lighting, you can add more LED key

ring lights to the strip.



Image 63 - DIY Macro Ring Light in Action

How to Make a Macro Extension Tube

You wouldn't believe it... With just a few items, you can easily create your very own extension tube. Who says macro photography has to cost an arm and a leg?

What Is Required?

- Camera body cap
- Pringles can
- Black spray paint
- Tools to cut the camera body cap (eg. Box Cutter) and pringles can
- Sand paper to sand the edges of the camera body cap
- Hot glue / PVA glue
- Black cloth / velvet
- Rubber band

Tutorial Steps

1. Cut a hole through the camera body cap. If you do not want to cut through your current camera body cap, you can easily buy a spare one for a few dollars. We used the hammer and nail method – all that was required was hammering a nail into the edge of the circle. As you are hammering the nail, the cover will just break off.



Image 64 - Make a Hole in The Camera Body Cap

1. Put the camera body cap onto the end of the Pringles can and trace the circle of the hole onto the Pringle can.



Image 65 - Trace a Circle for the Hole

1. Cut the hole out of the Pringles can. We didn't use any sophisticated equipment here – all we used was a box cutter. You could use a drill or some other cutting/sanding apparatus if you want a more professional looking and smoother hole. If required, you can also use sand paper to smooth out the hole.



Image 66 - Cut a Hole into The Pringles Can

1. Prepare the Pringles can by cleaning it. You may choose to

use to give the inside a quick wash with some dish washing liquid.

2. With the black spray paint, spray the paint on the inside and the outside of the Pringles can.



Image 67 - Spray the Inside and Outside with Black Paint



Image 68 - Painted Pringles Can

1. Once cleaned and dry, glue the camera body cap onto the end of the Pringles can, making sure that the holes align together.



Image 69 - Align and Glue Camera Body Cap onto Pringles Can



Image 70 - DIY Extension Tube

1. Check to see if your camera lens will fit into the other end of the hole. It is likely that it will be smaller than the Pringles can. So you will need to wrap strips of black material around the lens until it fits snugly into the hole of the can. We used black velvet and a rubber band to keep the velvet wrapped around the lens.



Image 71 - 50mm Lens Wrapped in Velvet Strip and Rubber Band

1. Connect the body cap on the Pringles can to the camera body.
2. When inserting your camera lens into your DIY extension tube, it is recommended that you place the lens in reverse. This way, you will be combining the reverse lens technique with an extension tube, thereby achieving even greater magnification.



Image 72 - Final DIY Extension Tube With Reverse Lens

12. Easy Tips to Save Money to Purchase the Best Macro Photography Gear

If you've been in a state of panic trying to figure out how you're going to afford super-expensive photography gear, you are most definitely not alone. All photographers – except for those who may happen to be independently wealthy – often struggle with figuring out how they can afford the cameras, lenses and other essential photography gear they so desperately want/need. In this chapter, we will share some proven techniques (not photography related) to help you save extra money up for those items that you simply must have.



Image 73 - Saving for your next gear

Money Saving Tip #1 – Be Smart About Transportation

Let's face it – gasoline prices are sky-high, and don't look to be coming down in the future! But if you're smart about your transportation options, you could save a lot of money every month. Public transportation is a great option. If you have bus or train line that runs in your area, you could get where you need to go every day, while avoiding expensive fill-ups at the local gas station. Put that extra money into your photography gear funds, instead of that gas guzzling fuel tank!

Money Saving Tip #2 – Avoid Impulse Buys

It happens to everyone; you are checking out at the grocery store and see that candy bar, pack of gum or other impulse item and end up purchasing it, even though you don't need it. Here's the thing, though, the people who set these items up, do so strategically. They know that when your money is out it is very easy to simply tack on unnecessary purchases in the form of impulse buys. Muster up a bit of willpower, and avoid buying anything at the supermarket that is not on your list, and divert your eyes from impulse items. This simple tip can help you to sock away that extra cash into your camera-purchasing budget.

Money Saving Tip #3 – Weatherproof Your Living Space

A lot of extra money may be floating out of your bank account in the form of a house or apartment that is energy-inefficient. Take some time to assess your living space, and make it more energy-efficient. A few bucks spent on caulking holes & cracks can go a long way in lowering your monthly heating and cooling costs. You can take the money that you save and use it on really important items – like that new lens or upgraded camera instead!

Money Saving Tip #4 – Budget, Budget, Budget...

The best way to save money is to be meticulous about your budget. Start a spreadsheet and keep track of money coming in versus money going out. Once you have a baseline of a few months in your spreadsheet, it becomes easy to find trends that are sucking your bank account dry and make necessary adjustments. There's no substitute for being on a smart budget when you're serious about saving up for better photography equipment.

We hope these tips help to inspire you and assist you in your quest to save up money for better photography gear. And don't forget to think about saving as an ongoing task that pays off when you stick with your plan for the long haul. By implementing just one of these tips for a few months, you may find yourself having plenty of cash to spare for that new piece of photography equipment that you've been dying to get your hands on!

13. Understanding Common Issues In Macro Photography

To fix any problem, one must first understand it. This statement holds true whether it is a problem in life or an issue in macro photography. This chapter will help you to understand how you can analyze your photos to understand why your photos are blurry. It will teach you the basics of identifying the problem and provide you with some solutions on fixing blurry photos.

Blurry photos can occur for a number of different reasons. Before you can fix the blurriness in your photo, you must first understand what is causing it. In the digital age, where we have access to instant previews of our photos, it is often quite easy to pinpoint the cause of the blurriness. The photo preview on your camera is an important feature and will provide you with instant feedback on how your photo has turned out. Remember to always zoom into the image to look at it in more detail as the small image will always look deceptively sharp on the LCD preview screen.

If you notice that your photo is blurry, then you need determine the cause of the blurriness. Here are the usual causes of blurry photos -

How to Identify and Fix Blurry Photos from Camera Shake



Image 74 - Camera shake example

Blurriness caused by camera shake is often quite easy to identify. The foreground and background of your image will appear to be blurry and nothing within the photo will appear sharp at all.

Problem / Cause

Camera shake is often caused by using slower shutter speeds. As the opening of the lens is opened, your camera is moving/shaking around, thereby resulting in a blurry photo. It is also worthwhile noting that the amount of camera shake usually increases as you increase your magnification in macro photography.

Solution

The general rule of thumb that we use to minimize camera shake is to use a shutter speed that is faster than $1/\text{'camera lens length'}$. So if you are using a 105mm macro lens, you need to ensure that the shutter speed is greater than $1/105$. Using a shutter speed slower than this will often result in blurriness caused by camera shake. In situations where you are unable to use the appropriate shutter speed, you will need to consider using an additional light source (eg. a flash unit) or a tripod.

How to Identify and Fix Blurry Photos from Incorrect Focus Point



Image 75 - Incorrect focus point example

Blurriness caused by incorrect focus point can be easily identified. Here, the subject of your photo is not in focus and appears to be blurry. However, another spot within the image is in complete focus and is sharp.

Problem / Cause

Blurriness caused by incorrect focus point occurs as a result of focusing on the wrong thing in your image. If you are using the auto focus point feature in your camera, it generally means that you have accidentally selected the wrong focus point or the camera has not focused onto the right area correctly. As you can see from the image on the left, the auto focus point has been set to the green leaves/grass. As a result, the green leaves/grass is in focus and our flower subject appears to be blurry.

Solution

Blurriness caused by incorrect focus point can be fixed by ensuring you are focusing onto the right area. If you are using auto focus points, then it is as simple as moving the auto focus point over the subject area that you want to be in focus before you take your shot. If your camera has trouble focusing onto the subject area, we suggest you move to a different view point or manually focus.

How to Identify and Fix Blurry Photos from Subject Movement



Image 76 - Subject movement example

Blurriness caused by subject movement can be quickly identified. Here, everything appears to be in focus with the exception of your subject. There will be a trail/shadowy duplicate of your subject within the image. This gives the viewer the perception of movement.

Problem / Cause

Blurriness from subject movement is often caused by a number of factors. If we are dealing with inanimate objects such as flowers, then this is often caused by the wind. If we are dealing with bugs, then this is actually caused by the movement of the bug itself! However, the true cause of the blurriness is the shutter speed. Essentially, the shutter speed you are using is not fast enough to freeze the motion.

Solution

By increasing your shutter speed, you will be able to freeze the motion. You may also wish to consider using a flash to help you freeze the motion of your subject.

How to Identify and Fix Blurry Background Photos



Image 77 - Blurry background example

Blurry backgrounds are commonly used in macro photography to help focus a viewer's attention onto your subject. It adds a creative effect onto your photo.

As such, your subject will be in complete focus and the background of your image will then appear to be blurry.

Problem / Cause

Background blurriness occurs when you are using a large aperture setting on your camera. eg. $f/2.8$.

Solution

To eradicate the background blur, you will need to lower your aperture setting on your camera. For example, rather than using an aperture of $f2.8$ you will want to ensure you use a much smaller aperture such as $f/22$. This will usually bring the whole image into focus then.

Armed with all the above knowledge on fixing blurry photos, you can now say goodbye to blurry photos forever. Don't forget that practice makes perfect.

14. How to Kiss Blurry Photos Goodbye

Whether we like it or not, we have all been victims of the gremlin that is hiding within our cameras – that darn gremlin that causes our photos to be blurry. It is really disappointing and heartbreaking to take a photo and only to find that the photo is blurry. In macro photography, sometimes you just don't get a second chance to re-take that shot. This is especially true when you are taking photos of insects. By the time you find out that your photo is blurry, your subject may have already flown away.

So it is very important to make every shot count and to ensure that you keep the below macro photography tips in mind when you take your next shot to avoid blurry photos.

Tip #1 – Select an Appropriate Shutter Speed to get Sharp Photos

When shooting hand-held, be aware of your shutter speed setting. Blurry photos are usually caused by long shutter speeds. In this scenario, there are a number of adjustments that you can make to reduce the blurriness on your photos.

One solution is to increase the amount of light hitting your sensor by opening up your aperture. For example, choosing an aperture of $f/2.8$ instead of $f/8.0$. It is sometimes not possible to open up your aperture as this may not achieve the right composition result that you are after eg. You may want to shoot your photo with small aperture (eg. $f/16$) to achieve a large depth of field where the background remains in focus.

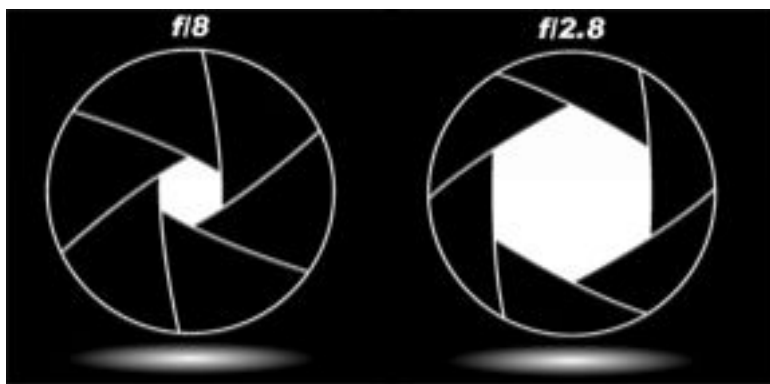


Image 78 - Aperture example

In this scenario you could consider increasing your ISO setting. By increasing the ISO setting, you will reduce the shutter speed on the shot. However, depending on your camera, there is usually a tradeoff between ISO setting and the quality of your photos. A high ISO setting will generally introduce 'noise' onto your photos and will decrease the quality of your photos (more grainy).

If you are commonly taking photos hand held, it is sometimes worthwhile to invest into a lens that has image stabilization. These lenses have been developed to reduce blurring associated with the motion of a camera during exposure. For Canon lenses, these are often branded as Image Stabilization (IS) lenses and for Nikon, the technology is more commonly known as Vibration Reduction (VR). Just keep in mind that IS or VR will not be as useful in macro photography since you are extremely close to your subject.

When shooting hand-held there is a quick way to determine if the shutter speed that you are using is appropriate. In order to take sharp photos, you will need to ensure that your shutter speed is faster than 1

/ focal length of your lens. For example, if you were shooting with a focal length of 100mm, you need to ensure that your shutter speed is at least 1/100 sec or faster (eg. 1/200 sec). If you shoot with a slower shutter speed than 1 / focal length of your lens, your photo will be subjected to movement and will result in more blurriness.

Tip #2 – Shooting Techniques to get Sharp Photos

If the above scenarios do not improve the sharpness of your photos, you will need to consider using a flash. This will ultimately allow you to take photos that require longer shutter speeds. If you do not have a flash or do not wish to use a flash there are a number of ways which you could try to reduce camera shake.

- When you are shooting, bring your elbows towards your chest and press it against your chest for extra support.
- When shooting subjects that are close to the ground, you may wish to leave the camera resting on the floor
- If you are sitting down on the ground, you could have your foot flat on the ground and use your knee as a tripod by resting your elbow or camera onto your knee to increase stability
- Take a breath in, hold your breath and press the shutter. Some people have success in taking the shot at the end of the exhale or during the exhale. Try the different ways and see which one works best for you.

If the above has not helped to reduce your camera shake, then you should consider using a tripod.

Tip #3 - Using a Tripod to get Sharp Photos

Using a tripod will help to eliminate some of the causes of camera shake. If you are still experiencing blurriness when using a tripod you may have to try the following -

When shooting on a tripod, it is recommended that you use the mirror lock function on your camera to reduce any vibrations caused by the mirror when you press the shutter button.

Additionally, use a remote trigger to take your photos to reduce any potential movement you may cause to the camera by pressing the shutter button. If you do not have a remote trigger, you can easily set your camera to take a photo based on a timer. This will ultimately reduce the amount of camera shake when you are taking the shot.

Tip #4 – Using ‘Live View’ to get Sharp Photos

We have all been in the situation before – we look through the view finder and everything looks as though it is all in focus and sharp. However, when we look at the image on our computer, it is not sharp at all.

One feature that is not used too commonly by photographers is the live view function on their camera. In macro photography, we can use Live View to help us to capture photos that are sharp and in focus. Most DSLR cameras nowadays have Live View capabilities. If you don't know what it is, Live View is the feature where you can use the LCD display screen on your camera as the viewfinder. It therefore provides you with a preview of what your camera is seeing.

This macro photography technique involves enabling live view on your camera and then using the digital zoom feature (usually depicted as a magnifying glass on one of the rear buttons) on your camera to zoom into your subject for a closer inspection. By digitally zooming in onto the subject, you will be able to see whether your image is sharp and in focus quite easily. You don't need to leave it to luck anymore!

So the next time you take your photo, ensure you turn on live view, magnify the image on the display screen, manually adjust your focus and then take the shot.

Tip #5 – Focusing Technique to get Sharp Photos

There is a simple focusing technique that is very effective in capturing sharp macro photos. You will need to –

- Set your lens to manual focus first
- Then you will need to manually focus the lens so that you will achieve the highest magnification
- Approach your subject and then slowly move toward your subject until it is in focus
- Once you have determined the point where your subject is in focus, you can then slowly sway back and forth to fine tune the focus point
- As you are moving back and forth, there will be an instance where the subject is in focus. When this occurs, trigger the shutter button

15. Macro Photography Technique – Focus Stacking

By Eric Vetting

What is Focus Stacking?



Image 79 - Focus Stacking (7 stack, f16, ISO 200)

Focus stacking is a technique commonly used in macro photography to improve the depth of field of your subjects. Focus stacking involves taking multiple photographs of your subject at different focal distances and then combining these photographs into a single photo. For example, when photographing a bee, three photos could be taken – the first photo focused on the head of the bee, the second photo focused on the body of the bee and the last photo focused onto the back of the bee. If we looked at each of the photo individually, only one part of the bee would be in focus due to the shallow depth of field. However, through the use of a focus stacking computer software, these photographs can then be processed and combined into one clear, in focus and very detailed photograph.

Why Use Focus Stacking in Macro Photography?

Have you ever noticed areas in your photos that are soft and out of focus? This is often caused by shallow depth of field and is a very common occurrence in macro photography. The good news is... There is a way to get around this. That is of course through the use of focus stacking! By using the focusing stacking technique, you can now achieve the in focus and detailed photograph that you have been dreaming of!

Before Focus Stacking:

A single shot of a coin before focus stacking. Notice the out of focus areas on this coin as a result of the shallow depth of field.



Image 80 - Before focus stacking

After Focus Stacking:

After focus stacking – This final image is created from 22 stacked photos. Notice how sharp and in focus the coin is.



Image 81 - After focus stacking

As you can see, focus stacking can be very useful. However, there may be times when you don't want a totally in focus photo for creative reasons. The choice is yours!

Indoors vs. Outdoors Focus Stacking

Focus stacking is a technique that can be used indoors as well as outdoors. However, the majority of photographers would prefer to work indoors within a controlled environment that is more predictable. Most indoor focus stacking is done in a small studio, with 'non moving' subjects.

Outdoor focus stacking requires a different skill set and is usually more challenging as your subject may move on you. When using focus stacking on subjects in an outdoor setting, it is recommended that you set your aperture high so that you can achieve greater depth of field. After taking the first shot move your body ever so slightly forward to take another and if you are lucky, you might get two or three shots before your subject disappears on you!

There is no doubt that this can be very difficult and will require a lot of perseverance from your end. More than often you will be met with failure... So practice is a must! However, to give you more chance of success, you might want to opt for a very good tripod, a focusing rail and a remote shutter release for flowers and very patient insects.

What Equipment Is Typically Used For Focus Stacking?



Image 82 - An example of a focus stacking setup

- Camera and macro lens
- A good high end tripod
- Light Tent/Box (to diffuse light)
- Good lighting (I use three corkscrew 100 watt fluorescents, in three clamp on fixtures. If you do not have access to one, you can use a good flash or strobe with diffuser.)
- A stage and a specimen holder (if doing indoors focus stacking). We used a 'Soldering Helping Hands' in this tutorial.
- Focusing rails
- Wired or remote shutter release
- Focus stacking software (recommendations below)
 - CombineZP (A free download)
 - HeliconFocus (Shareware – Must be purchased)
 - Zerene Stacker (Shareware – Must be purchased)

What Are Some of These Equipment?

There are several specific photography equipment that were listed above which were not covered under the macro photography equipment chapter. They include the following -

1. Light Tent/Box

The purpose of the light tent / box is to provide a controlled environment where you can place your subject into so that it can be lit up by soft, diffused and even lighting. These light tents / boxes can be easily created – often cheaply or even free (depending on what is around in your home). Check out our DIY section to see how you can make your very own light box. Alternatively, these light tents / boxes can be purchased in varying sizes.

2. Stage & Specimen Holder

The stage and specimen holder is essentially a tool that will help you hold your subject in place so that it can be photographed. There are a number of tools you can use, but I use a tool that is commonly used in soldering – ‘Soldering Helping Hands’.



Image 83 - Focus stacking and specimen holder setup

Focus stacking can be done by anyone (even beginners). After you complete your first focus stack photo, you will be amazed by the quality and sharpness! A friendly word of warning, you may be so obsessed by the goal of wanting to see very small things clearly and close up that you might go to great lengths to achieve it – such as taking over 100 photos of the subject to focus stack!

What is Required?

- Camera and macro lens
- A good high end tripod
- Focusing rail
- Wired or remote shutter release
- Good lighting (I use three corkscrew 100 watt fluorescents, in three clamp on fixtures. If you do not have access to one, you can use a good flash or strobe with diffuser.)
- Focus stacking software – I used CombineZP (A free download)

- A good solid table (For your light tent, stage and subject)
- Light tent (For diffusing light) – You may opt for a flash, I don't use one.
- A stage and specimen holder (This is a place to stage and hold your subject or specimen) – I used a tool called 'Soldering Helping Hands' as my stage and specimen holder.
- Color construction paper (For background ambiance)
- Crazy / Super glue

Here is how my macro photography focus stacking setup looks like –



Image 84 - My focus stacking setup

If you do not have a light tent or external lighting, you could try the following basic bare bones setup. This is a great way to start learning and produces very good results!



Image 85 - Basic focus stacking setup

16. How to Focus Stack (Indoor) Tutorial

By Eric Vetting

For the following tutorial Eric will be using an insect as his subject.

Step-by-Step Focus Stacking Tutorial

Step 1. Obtain an insect of your choice in a container and put it in a 'killing jar' or use your freezer to do the job. A killing jar is any old jar with a few cotton balls on the bottom absorbed with ethyl acetate also known as Finger nail polish remover. Cover the cotton balls with a round cardboard disk cut to size so your specimen does not become entangled in the cotton. Make sure your jar has a tight fitting lid. Please be aware that there has been a decrease in the bee population this year so please keep this in mind when you are catching your next subject.

Step 2. After a few minutes, you now have your 'non moving' insect and it is ready for mounting on the end of thin wire, pin or needle. Put a small dab of crazy / super glue on the end of your needle and stick your needle into it and allow time for glue to set. This may take some practice to get it right. After the glue has set, your specimen is now ready to be put into the specimen holder for staging and photographing.



Image 86 - Focus stacking setup

Step 3. It is now time to mount the focusing rail, camera and shutter release to the tripod and prepare for the focus stacking photo shoot!

Step 4. For your camera settings, I recommend an ISO setting of 100 or 200 to keep noise level down and an aperture setting of about f14 for your first try. Once these are set, you can adjust your shutter speed using your exposure meter for proper exposure in the manual mode of your camera. If your camera has it, use the mirror lock up mode as

this will reduce vibration.

Step 5. With your camera, focus rail and shutter release mounted, it is time to get everything lined up and straight with your subject. This takes a bit of patience, but must be done! Once you get your subject into your view finder, lock down all knobs on your tripod to reduce movement and vibration. Now, while looking through your view finder, carefully rotate your focus rail knob until you can just start to see the closest part of your subject coming into focus and stop there!

Step 6. We are ready to take your first shot! Holding only your shutter release and not touching the camera or tripod, press the shutter release all the way and wait for the mirror to lock up and wait a few more seconds for vibrations to stop and press the shutter release once more. You have just taken your first shot!

Now, lightly grasping the focus rail knob, rotate the knob just a very small fraction to the next focus area of your subject and repeat the shot. Repeat this step until you have reached all the areas you want in focus and then stop! Here are some examples of the photos that I took – notice how different parts of the wasp is in focus for each shot.



Image 87 - Focus Stacking – Photo #1 (Front in focus)



Image 88 - Focus Stacking – Photo #2 (Middle in focus)



Image 89 - Focus Stacking – Photo #3 (Back in focus)



Image 90 - Focus Stacking – Final Combined Photo

Step 7. Take your camera off the tripod and download your photos onto your computer into their own folder. Now we need to open our stacking software and load our photos into the program making sure we load them in the same order as we took them. The first thing we do is align our photos using the align functionality. Some focus stacking software will allow you to choose a specific focus stacking mode. Try all the different modes to see which one you prefer most. That's it! Save your new focus stacked photo to a folder. With practice, you will develop your own ways of doing things. Remember, only the basics have been shown here to give you some idea how focus stacking is done. There are many different ways to do what was shown here. The most important thing is to have fun and keep learning!

Tips and Advice for Better Stacked Photos

- If you can, set up your studio in the basement with a cement floor to reduce vibrations to your equipment! Vibration is your enemy, and will make your stacks soft!
- For good light positions, the same rules for Portrait photography apply here
- If using a flash or strobe, you may want a light diffuser to soften the light
- Experiment with different types of lighting to find the style that best works for you
- Make sure your camera is aligned with your subject so your framing does not change as you adjust your focusing rail
- Use your mirror lock up function to reduce vibrations when taking a photo
- At higher aperture settings (eg. f/16), you can get away with as little as two photos for your stack. This is because of a larger focus area or more depth of field
- At lower aperture settings, (eg. f/4), you will require many photos with very, very small adjustments of your focusing rail. This is due of the very shallow depth of field. Some photographers can take as many as 150 or more to achieve the results they want
- Try to keep your ISO low, 100 or 200, to reduce noise in your photos
- If you keep your insects in the freezer, allow them time to warm up and evaporate any moisture off of them before photographing
- Use a magnify glass to inspect your dead insects for dust, dirt and grime that may ruin your photo! If dirt is found, gently clean them off with a fine tip artist paint brush for a much better quality image.

Remember that this technique can be used on all types of subjects – even flowers! So get out there and start practicing!

17. Practical Macro Photography Tips and Tricks

How To Photograph Insects / Bugs

Once you delve into macro photography as a hobby, you find that it really is true that photography is an art form. While some people may say that it's easy to pick up a camera, point it at your subject and ultimately to take a great macro photograph, those of us who have put hours into our passion for macro photography know all too well that there's more to capturing amazing images in our photographs than simply clicking a button. This is especially true for macro photographers who love to spend time shooting nature/wildlife photographs. When you're dealing with Mother Nature, or any of her creatures, you have to know what you're doing.

The secret to photographing insects comes down to two things... Patience and perseverance. When your photography subjects are bugs, it is not as simple as dialling in the camera settings and taking the shot. As a macro photographer, you would actually be spending the majority of your time searching for bugs and chasing them around. It is not unusual for a macro photographer to take hundreds of shots of a bug and walking away with only one good shot.

In this section, we share a number of important tips with you to help you to overcome some of the challenges that you will experience when photographing insects.



Image 91 - Photographing insects

Tip #1 - Learn About Your Photography Subject

Here's a common scenario that many macro photographers go through on a regular basis: The photographer decides he wants to shoot some up-close-and-personal shots of a particular insect. He knows those very insects are in his garden, as he sees them every day. So, our photographer heads out to the garden, sets up his gear and spends the afternoon fruitlessly trying to get some good shots of his favorite bugs. What went wrong? Why aren't you able to get those killer shots of your favorite bug, insect or creepy crawler?

It usually boils down to the fact that many new photographers simply don't take the time to really get to know their subjects. Different bugs/animals react differently to the very presence of a human being. While a butterfly might go about its business if you shoot it from a few feet away, trying to get very close with your gear may very well scare your subject.

You have to learn how the living creatures you plan to photograph react to your presence. This means taking time to read up on the animals or bugs you want to photograph and experimenting with different

distances to capture optimal shots. The last thing any photographer should do is simply burst on the scene and hope that his/her actions won't upset the very subjects that he/she wishes to photograph. Just like you get to know your human subjects when you take family photographs, you must put in a bit of research time to get to know your four, six or eight legged subjects too.

So before you head out into the field, make sure you invest some time to learn about your macro photography subjects. Spending a few minutes to do some research or even taking some time out to remember your previous encounter with the subject will be worthwhile as it will reduce a lot of frustrations for you in the future.

The two main things that you need to remember about any insect is –

1. Habitat
2. Behavior



Image 92 - Learn all about your subject

Habitat

Without learning about the habitat of your subject, you will be wasting a lot of your time searching for your subjects. By knowing the preferred habitat of

your subjects, you can quickly hone in to areas where you are most likely to find your subjects. For example, grasshoppers usually hide in tall grassy areas and butterflies are frequent visitors of areas where there are blossoming flowers.

By being a smart macro photographer and learning about your subject's habitat, you will be able to spend more time focusing on your subject and photography itself!

Behavior

As a macro photographer, it is important for you to learn everything you can about the subjects' behavior. The movements and the behavior of the insects can be quite hard to predict. So, by learning about the behavior of your subjects, you can often anticipate and be prepared for their next move.

Learning about your subjects through books, websites or even instructions from other photographers is good, however you must spend some time observing your subjects in their natural environment. Spend time observing their behavior and take note of those times when they are more active versus the times when they are a bit more relaxed. If you want to capture a shot of a bee landing on a flower, for example, you have to know the time of the day that the bees are most likely to be out and foraging around. And you also need to observe how long it takes said bee to move from one flower to another. By spending just a bit of time doing some field observation, you'll be better prepared to take the kinds of photographs that you really desire the most.

Some key things that you should keep an eye out on are -

- What does the subject do when you approach it? Do they run for cover and hide under a leaf or do they just drop from the flower as soon as they spot you?
- How close can you get to the subject before they start running, jumping or flying away
- Does the subject move in a straight line or does the subject travel in a zig-zag movement?
- Do they have the habit of returning back to the same area once they feel safe?

Tip #2 - Sneaking Up On Your Photography Subjects

When it comes to photographing insects, patience is the key. We have all been there before... We spot our subject nearby and as we approach the subject to take a photo, it gets startled and it runs away or flies off. Trying to get close to your subject can often be frustrating. Unfortunately, it is just something that we all need to get used to. It happens to everyone, even professional macro photographers who have been in the game for a very long time.

However, there are some things that you can do to give you a better chance of landing the shot. To get you started, here are some tips on sneaking up on your subjects.

Get down to your subject's level and be prepared to get dirty

When you spot your subject, the first thing that you need to do is to get down to their level. If it is an insect on the ground, the closer to the ground you get, the better. As a word of warning, outdoor macro photography can get dirty - so you will often find photographers laying down onto their belly and

crawling slowly towards the subject.



Image 93 - Get down to your subject's level

No sudden movements

It is important that you do not make any sudden movements as you approach the subject. Your approach should be as slow as possible and as quiet as you can be so that you do not startle your subject. If possible, try to avoid approaching the subject head on. A lens in someone's face will make anyone feel uncomfortable. When this happens to a small insect, the uneasiness is bound to be exponentially higher!

Start Early

As you sneak up on your subject, start snapping away. Some people may disagree with us, but in our opinion, this achieves two things. Firstly, you want to start acclimatising your subject to you. This includes getting the subject used to the noise of the shutter on your camera as you take your photos. And if you are using a flash unit, it will also help the subject to get used to the flash of light. At the end of the day, you want the subject to feel as though the noise and the flashes of light are part of the environment that they are in.

The other reason why we encourage people to take

photos of the subject as they sneak closer to their subject is due to the fact that the subject may get scared off. If this happens, at least you have captured some photos of the subject. You never know, you could crop one of those photos.

Tip #3 - Shoot in Colder Temperatures

They say that the early bird catches the worm. But did you know that it's the early-rising photographer who captures the best photos? If you are not having any luck in finding bugs that are 'cooperative', you may want to try shooting early in the morning when it is colder. Insects are generally more sluggish, placid and less active in colder temperatures. As such, you will have more chance of finding a more 'cooperative' subject in colder days.

For us, we prefer to take our photos early in the morning (before it gets warm) or later in the afternoon (when it starts to cool down). We try to avoid taking photos of our subjects in the middle of the day in the blazing heat. It is just too hard to sneak up on insects that are too active. It'll be tough to keep up with them or even find one that will stay still for you to take the shot.

There is an additional benefit of shooting early in the morning - the morning dew! The beautiful dew drops can add a new dimension to your photos. If you are lucky, you may even find some insects with amazing dew drops on their face and body! This will make a stunning photo!



Image 94 - Shoot early in the morning

Tip #4 - Wait For the Perfect Moment to Strike

Subjects that are distracted are usually easier to photograph. When you are out in the field, search for subjects that are pre-occupied or if you have the patience, wait for them to become distracted. The perfect moment to strike is when your subject is either

-

- Feeding / Eating
- Mating
- In the process of laying eggs

Additionally, to make your photo stand out from the rest, try capturing interesting behaviors. This could include –

- The moment when the insect takes-off / flies
- Insects that are in flight
- The hatching process of an insect
- Mating rituals



Image 95 - Strike when your subject is distracted

Tip #5 – Choosing the Right Lens For Your Subject

To give yourself a better chance of landing the perfect shot of your subject, it is important to use the right lens. When photographing subjects that may fly away and are not as accessible such as dragonflies, bees or butterflies, make sure you use a longer lens. This will give you a better chance of capturing a photo of your subject before it notices you and fly away.

On the other hand, when photographing subjects like ants, beetles or caterpillars you can use a shorter lens because these subjects are usually found in areas that are quite accessible (eg. close to the ground level). And if they decide to escape from you, at least you can give chase and keep up with them!

Tip #6 – Studio-like Background

There is a simple technique that you can use to isolate your subject from the background. This technique will allow you to achieve a 'studio-like' white background when you are outdoors. It will look as though you have shot your subject indoors in a controlled environment (eg. a light box). If this is the effect that you are looking to achieve, you can place a white acrylic plexi-glass sheet behind your subject before

taking your photo. Ensure that this is in a well-lit area so that you can achieve the ultra-white background. If there is not enough light, you can complement the lighting with a flash unit. The flash should be positioned so that it is pointing directly into the white acrylic plexi-glass sheet.



Image 96 - White background technique

Tip #7 – Determine Your Focus Point

When photographing insects and bugs, you want to determine the part of the insect that will be your focus point. As a macro photographer, you will be working in an environment where there is always going to be a shallow depth of field. As such, it is important to ensure that the sharpest area of your image is dedicated to the part of the insect that you are photographing. This will help to create tension and assist in drawing the audiences' eye into that specific area.

Some of the best focus points for insects include the following –

- Eyes – For example, the many eyes of a jumping spider



Image 97 - Focus Point: The Eyes

- Head – For example, the head and antennas of an ant



Image 98 - Focus Point: The Head

- Wings – For example, the patterns on the wings of a dragonfly



Image 99 - Focus Point: The Wings

- Legs – For example, the bee's knees that is full of nectar



Image 100 - Focus Point: The Legs

- Anything else that is unique to that species –
For example, the proboscis of a butterfly. This is the drinking mouthpart of the butterfly that looks like a drinking straw.



Image 101 - Focus Point: Proboscis

How to Photograph Flowers & Plants

Of all the brilliant and beautiful photography subjects in the world, there is nothing that can match the inherent beauty of flowers in full bloom. Many photographers are never happy with their macro photos of flowers. The truth is that some people will struggle a bit to produce high quality, brilliant and attractive photos of nature's most beautiful subjects.

To help you to start taking better macro photos of flowers, we are going to start from the basics. As you may have already noticed, we are huge advocates of learning – this includes developing your knowledge about macro photography as well as learning about the subjects of your photography. At the end of the day, knowing a little about your subject will help to enrich your macro photography experience.



Image 102 - Photographing flowers

Tip #1 – Learn About Your Photography Subject

You might think that this is boring or irrelevant to photography, however, understanding the different parts of your photography subject is going to help you to develop a sense of the core areas that you could focus on when photographing flowers. To help you get started, we have collated some descriptions of some of the key flower parts that you could focus on in your photography. Please note that this is not an exhaustive list.

We are not botanists, so this is just some of the knowledge that we have gathered throughout the years. We would encourage you to conduct your own research so you can further build on this knowledge.

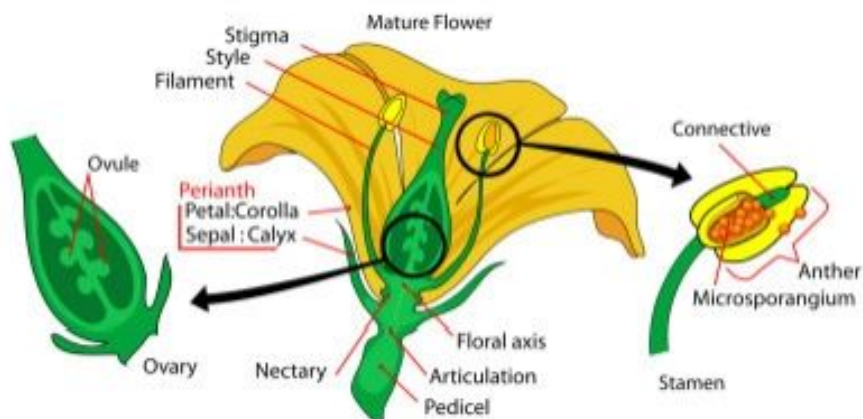


Image 103 - Parts of a flower (Credit: Mariana Ruiz / Wikipedia)

Stamen

The stamen typically consists of a stalk called the filament and an anther. It is the pollen producing part of the plant. One interesting fact that you may not know of is that the number of stamen will equate to the number of petals.

Anther

As mentioned above, the anther is part of the stamen and produces and contains pollen. Depending on the species of flower, it is usually on the top of a long stalk and will look like fine hairs.

Filament

This is the fine hair-like stalk that the anther sits on top of.

Stigma

This is the female part of the flower. It is the sticky bulb that you see in the center of the flowers. This is actually where the flower will receive pollen at pollination.

Style

This is the long stalk that the stigma sits on top of.

Petal

The petals are the bright and colorful part of the flower. They are responsible for attracting pollinators.

Sepal

The sepal are the green leaves that protect the flower bud before it opens. The sepals can still be seen after the flower blooms.

Tip #2 – Shoot with a Unique Angle

When photographing flowers, try shooting from a different angle. As humans, we are all used to seeing flowers from the top down view. Since we are used to seeing the flower from this angle, if you take a photo of the flower from the top down view/angle, it is going to look boring.

To capture a fascinating shot of a flower, you need to capture the flower with a view that we are not used to seeing. So what you need to do is to get down low and try to get eye-level with the flower. Once you are eye-level with the flower try some of these different and unique angles –

- Shoot from Behind



Image 104 - Different Angle: Behind

- Shoot from the Sides



Image 105 - Different Angle: Side 1



Image 106 - Different Angle: Side 2

- Shoot Front On (Up-Close)



Image 107 – Different Angle: Front On (Up Close)

- Shoot Upwards

Tip #3 – The Best Time for Flower Photography

The best time for outdoor flower photography (or any photography as a matter of fact) is on an overcast day. As you probably know, when the sun is out in all its glory (eg. Noon), the lighting is extremely harsh and will light up your subject very strongly. This could cause your photo to be overexposed, thereby resulting in washed out color. The harsh light can also cast dark shadows onto your subject and may ruin your composition of the photo.

As a rule of thumb, you should always aim to shoot during sunrise and sunset on days where it is not an overcast.

Tip #4 – Lighting & Positioning

We touched briefly on lighting in the previous tip and we wanted to expand on it here. If you are relying on natural lighting such as the sunlight, try to avoid photographing your flower subjects where the light is coming from above or the front of your subject.

When the light is coming from above or from the front of the subject, your flowers will not look great. The harsh light will expose all the imperfections of the flower and the color will be washed out.



Image 108 - Front Lighting Exposes Flaws in Your Subject

When faced with such a situation, you should re-positioning yourself so that the light is coming from the side or behind your subject. By re-positioning yourself, you can capture a completely different photo. If you didn't know, backlighting has an amazing effect on flowers. The backlight will light up the petals and make the petals glow. When taking a macro shot of the flower petals, you will be able to see all the beautiful texture of the petals and the shadows from the overlapping petals.



Image 109 - Back Lighting Makes Your Subject Glow

Tip #5 – Taking Sharp Photos

In the later chapters of the book, we will be sharing some tips on how to achieve sharp photos. Without going into too much detail here, we wanted to quickly highlight that you should consider the following when photographing flowers –

- Use a Tripod to minimize camera shake
- Use a Remote/Wireless trigger to take your photos so that you do not need to press the shutter button on your camera
- If you do not have a remote/wireless trigger you can easily make use of the on board camera timer. Set it to trigger the shutter in 5 seconds.
- When we first started in photography, we learnt about the ‘sweet-spot’ rule. This ‘sweet-spot’ was where the lens would achieve its sharpest image. The simple rule of thumb is that the ‘sweet-spot’ is usually 2-3 f-stops from your maximum lens aperture. For example, if your lens has the largest / maximum f-stop of f/2.8, you will want to step down your aperture and shoot either with f/5.6 or f/8.
- If you want to capture as much detail as possible, you will need to use an aperture of at least f/22. The downside to this is that you will need a flash unit or else it will look too dark.



Image 110 - Taking sharp photos

Tip #6 – Reduce Distractions in Background

As you would have learnt from the composition chapter, you must always check that there are no distractions or mess in the background

before you take your shot. A clean background is key to a great photo. Here are some tips on how you can make your photo less chaotic.

- If taking a photo of a flower and there are other flowers in the background, you can sometimes re-position yourself so that the flower in the background is hidden behind your main subject.
- Use a wide aperture (f/2.8) so that you can achieve a shallow depth of field. This will then ensure that all the flowers in the background will be out of focus and will not be as obvious.
- An external flash can also be utilized along with a fast shutter speed to underexpose the background so that you will achieve a completely black background. Try this for yourself – start with the following settings, f/9, ISO 100 and a fast shutter speed such as 1/250. It is a fairly cool trick!
- Shoot tight (zoomed in close and tightly crop) you can eliminate all the clutter around the surrounding of your subject. This is extremely good for when you want to photograph patterns.
- When out shooting, we usually carry along some color paper with us. We usually have a green color paper which we can slide behind the subject. This will block out the distractions behind the subject. With a wide aperture setting, you will not notice that the background was paper! This color paper can be used quite effectively – remember the chapter where we talked about color harmony? Make sure you read that so that you know how to select the relevant colors to ensure that your subject pops out!



Image 111 - Reduce distractions in background

Tip #7 – Always Carry a Spray Water Bottle with You

One of the best times to photograph flowers is right after the rain. Flowers will have water droplets all over them and your photos will look amazing.

Unfortunately, it doesn't always rain when we want it to. So, sometimes we just have to rely on the next best thing... a spray water bottle. This is a macro photographer's best friend and will allow you to artificially create your own water droplets onto your flower subjects. All you need to do is give it a couple of squirts and you will soon notice that water droplets will form on the petals.



Image 112 - Instant Rain on Your Subjects

There are so many creative ways to photograph water droplets on flowers or plants. One of the coolest things is to photograph the refraction inside the water droplet. The surroundings behind the water droplet is refracted inside the water droplet. What you can do is you can include another flower or an image behind the water droplet. This will then cause the background image to be refracted inside the water droplet. The photo will look unique and will stun all your friends and family! Just remember that the image will appear upside down as it is being refracted – so if you are trying to refract a background image, make sure you place that image upside down so that it is refracted the right side up.



Image 113 - Create your own water droplets

18. Where to Find Macro Photography Subjects When There Are None Around You

It's always a good idea for macro photographers to keep their eyes open. Everywhere you go, and everything you pass by in your day-to-day life can serve as inspiration – or even potential subjects – for your macro photography endeavors. From the flowers that you pass by in your garden to the box full of screws on your work bench, there are macro photography subjects everywhere that you look.

The secret to noticing these things and then taking memorable macro photographs of them is simply to be aware. Don't walk around in a haze, ignoring all the potential items that could very well serve as subjects for some unforgettable macro photographs.

Sometimes, the best places for macro photography is around the house and outside in your garden. This is actually quite common for most macro photographers! However, sooner than later you may just run out of new macro subjects to photograph or you may live in an apartment or in an area that is far from any plants and insects. So if this ever happens to you, then here are some activities and places for you to consider –

Suggestions by Annette Osborn -

Butterfly Conservatory

A butterfly conservatory is just what you might think. It is usually a large greenhouse type building that is licensed by the Department of Environmental Conservation to keep and breed rare and exotic butterflies. They are often attached to botanical gardens or zoos. Not only do these facilities house all manner of butterflies but they also contain the butterfly's' food sources of exotic flowers, succulents, and orchids, just to name a few. A butterfly conservatory is a “no brainer” of macro photography opportunities.



Image 114 – Butterfly conservatory

Zoos

Of course photography at zoos is a standard of practice for every photographer, amateur and professional. The macro photographer can also find areas of every zoo that are treasure troves of macro photography opportunities. Many zoos have rain forest exhibits with exotic flowers, and yes, bugs, that are easily accessible to the macro photographer. Most zoos also have extensive gardens between exhibits that offer a wealth of macro photography possibilities at all times of year. There is so much to see and shoot in a zoo that you really have endless opportunities if you use your imagination. I have also found that zoos often have petting zoos for families that allow you to get up close and personal with some of the animals. If you are prepared for a little goat spit on your equipment, you might get a lovely macro shot of a goat's funky eyeball for your portfolio.



Image 115 - Goat's eyeball

Hands-On, Children's or Science Museums

Of course the fine art museums that we all think about; with elegantly dressed visitors walking slowly past roped off exhibits and making quiet exclamations of “how marvelous” and “oh my just stunning”, probably don't offer a great wealth of shooting opportunities for the macro photographer. However, the “Hands on” or Children's museums offer unending chances. There is nothing quiet or aristocratic about these places. Kids running hither and yon and making as much noise as possible are trademarks of these macro rich environments. People are encouraged to manipulate and explore in these institutions. Sand, feathers, fossils, minerals, crystals, textiles, water, (and other liquids), rocks, and just about any other materials that can be manipulated by little hands to stimulate little brains can be found here. If you don't have children to take to these places, borrow a friend's kids.



Image 116 - Hands-on science museums

Suggestions by Seeing in Macro -

Botanical Gardens

Botanical gardens are one of the best places for macro photography. The picturesque gardens have a diverse collection of plants and flowers to satisfy your flower macro photography hunger and addiction. With plants and flowers, will also come the bugs. For photographers who do not have access to a home garden, this is a dream come true. You will be able to get up close to your photography subjects to capture the perfect macro photo.



Image 117 - Plants, flowers and insects

Walking Photo Tour

An outdoor walking photo tour provides an abundance of opportunities to get close up with all types of flowers, plants and insects. More importantly, it provides you with the opportunity to discuss, learn and share your passion with other macro photographers. An outdoor walking photo tour is a guided tour and is typically organized by people who are extremely passionate about their specialization – this may include experts in plants, flowers, insects and photography.

While these walking photo tours provide you the opportunities to snap the perfect macro photo, a large part of it is also for you to learn more about the subjects of your photography. These walking photo tours are guided by knowledgeable people who will share a range of topics with you. This may include providing you with the facts and history of your photography subjects. For us, the fun part was learning how to identify our photography subjects. We find that it is extremely rewarding when you are able to identify and talk to others about the subjects of your macro photography.

Since walking photo tours are usually quite hands on, it is one of the best ways to learn about macro photography. As Benjamin Franklin once famously said, “Tell me and I will forget, teach me and I may remember, involve me and I learn”...



Image 118 - Photo walks can be educational and fun!

In The House - Kitchen

Macro photography has fast become associated to insects, plants and flowers. For many people, the kitchen would be the last place they would consider for their next macro photography project. However, there are many interesting macro photography subjects that can be found in the kitchen.

Here are some suggestions -

Look at what's on the kitchen bench / table

You can find unique objects around the kitchen bench / table. Start by searching for interesting bottles (eg. oil bottles, balsamic vinegar bottles, etc). When taking macro photos of the bottles, remember to shoot it from a unique view – one which the human eyes are not typically used to seeing. This will add another dimension to your photos.



Image 119 - Look around kitchen bench

Try photographing some fruits that you have around the kitchen next. If you have never tried it before, we highly recommend you to try slicing the fruit up and taking a close up photo of the sliced fruit. Through this photo you will be able to expose all the detailed textures and patterns within the fruit.



Image 120 - Sliced fruit

Look in the drawers and cupboards

In your drawers, you will be able to find some kitchen utensils to create a beautiful photo composition. Consider using the forks or spoons in the drawers and taking a macro shot of these.



Image 121 - Look in the drawers

Alternatively, look for interesting cups or bowls that you may have in the cupboards. You may wish to look for bowls or cups that have unique colors or shapes.

One unique kitchen utensil that you can use to take some incredible macro shots is the kitchen grater / shredder. Place a grater on top of a colorful material or paper so that it reflects the color of the material. You can then take a macro photo of the color reflections on the bumps on the grater.



Image 122 - Abstract image on grater

Look in the fridge

Fridges provide many close up photography opportunities. Look for things such as cans of soft drinks/beer and vegetables. Remember to dribble some water onto the cans or the vegetable to give it that perception of 'freshness'. Vegetables are sometimes quite interesting to shoot – especially the ones with mesmerizing patterns. If you have a roman cauliflower or broccoli in your fridge, then you will be amazed by the macro photos that you can shoot with this vegetable!



Image 123 - Look in the fridge

19. How to Make Your Garden a Macro Photography Subject Magnet

When you make the leap to become a macro photographer, you will find that you're almost always on the prowl to find subjects for your photo shoots. And if you like to capture bugs and other wildlife during said shoots, you'll more than likely spend a fair amount of time scouting out the best locations in your area to find your subjects. But what if you could make it easier on yourself and actually attract more macro photography subjects to your property? Well, that's what we're going to talk about in this chapter: How to make your garden a virtual magnet that attracts beautiful creepy crawlies for your macro photography shoots.

Like us, you're probably living a very full and busy life. It's just not always possible to run out to the local park or community garden to find good subjects for your photographs. When you follow the advice in this chapter, you should find that you almost always have plenty of subjects for your photographs that are as close as your own back yard.

How to Attract Butterflies

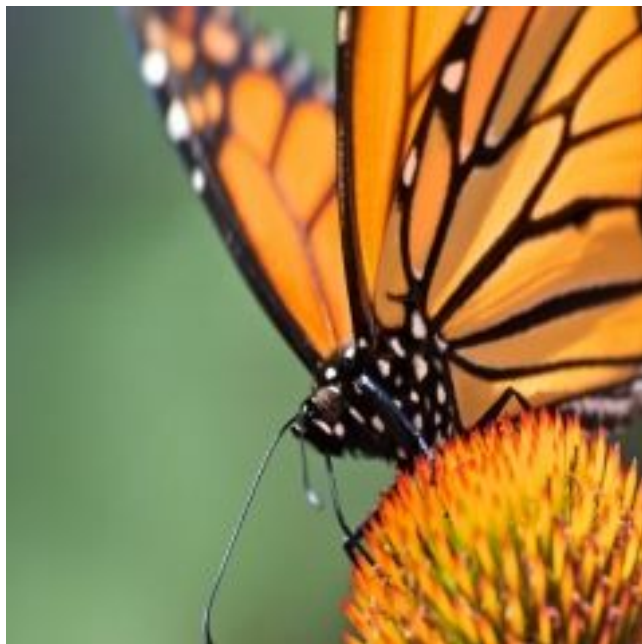


Image 124 - How to attract butterflies

Butterflies are always a favorite subject of wildlife macro photographers. There simply aren't any other creatures in the wild that are as beautiful and graceful as butterflies. It only makes sense, then, that you'd want to include some plants in your garden to make it a more hospitable environment for these dazzling creatures. Ideally, your garden should include a wide variety of plants, flowers and even wild grasses to attract butterflies. By including a variety of flora in your garden, you make it hospitable and inhabitable for both adult butterflies and those that are in the larvae stage.

Here are some plants you may want to plant in your garden to attract more butterflies:

Serviceberry bushes

These bushes are very good for caterpillars. If you want butterflies in your garden throughout the warm

weather months, include a few serviceberry bushes.

Butterfly bushes

With the name alone, you can tell this is one of the best plants to have around if you want to attract butterflies. Most nurseries keep these plants in stock and you can pick up good sized butterfly bushes at a very reasonable price. These bushes attract a wide array of butterfly species, so try to include a few of them in your garden.

Dogwood trees

These small trees are very attractive and they are great for both caterpillars and butterflies. Think about making a dogwood tree the center of your garden, and you'll almost certainly have plenty of colorful butterflies on hand for your photo shoots.

How to Attract Other Interesting Insects

Here are some other plants that you may want to consider to attract other insects to your garden/yard:

Cornflowers

These brilliant, blue flowers release a lot of nectar. This means that if you plant some cornflowers in your yard, you can expect to get visits from lots of butterflies, wasps, bees and even ladybugs. These flowers are easy to care for and put out nectar even when they are not in full bloom.

Fennel

This hearty plant is very easy to find in most nurseries and available in several colors. The best thing about fennel is that they attract a wide variety of beneficial and interesting insects. Bees and butterflies are especially fond of fennel, so add some to your garden as soon as you get a chance.

Sunflowers



Image 125 - Sunflowers

If you like your flowers on the large side, you can't resist planting sunflowers in your garden. And you know what? Bees absolutely can't resist sunflowers either. And with the large size of these flowers, they

make the perfect background for your bee photos.

We hope that you are feeling inspired to get out to the garden and plant some of the flowers and shrubs that we mentioned in this chapter. It really is amazing to watch your garden come to life with all sorts of amazing critters when you include some of the plants. Now is the time to get to work. Happy gardening and even happier photography sessions to you!

20. Unique Macro Photography Ideas & Tutorials

Photographing Bubbles Tutorial



Image 126 - Photographing bubbles

Bubble photography is a super fun project that can be performed indoors or outdoors. However, we recommend that you do it outdoors as it can get fairly messy when you are lost in your little world blowing and chasing bubbles!

This will usually provide you with an excuse to head outdoors, enjoy the sun and most importantly have some fun! Blowing bubbles is fun for both adults (for those who admit it) and children, so this is a great opportunity to also involve the younger ones in the family.

What Is Required?

Pre-made solution:

- Bottle of soap bubble solution – this can be found at any stores in the kids / toys section. This should come with its very own wand.
- A few drops of the secret ingredient - [Glycerin](#). This is a sweet syrup used commonly as a sweetener and can be purchased at Walmart or even online on Amazon.

Home-made solution:

- 1 cup water
- 2 tablespoons of the secret ingredient - [Glycerin](#)
- 4 tablespoons of dish washing liquid
- 1 pipe cleaner to form the wand. This is just a very flexible and bendable piece of metal.

Some Tips Before You Start

Photographing bubbles is not rocket science – everyone including beginners can learn how to take great shots of bubbles! Before we get into the tutorial steps, here are some quick photography tips to help you get started with bubble photography –

- Bubble photography is all about having good lighting conditions.
- Ideally shoot during the early mornings or right before dusk. The natural morning sunshine does a good job at lighting the bubbles. The sunshine right before dusk provides darker backgrounds which will bring out the colors of the bubbles.
- Ensure you take photos of your bubble against a darker background to bring out the swirly colors of the bubble.
- Choose a day that's not as windy as this will allow you to blow bigger bubbles.
- Try to avoid dry and hot days as your bubbles will pop quicker.
- Try different mix ups of your bubble solution as this may affect how big or long the bubble lasts for. Adding [glycerin](#) to your bubble soap solution will help it to get stronger and last longer.
- Regardless of the shape of your wand, the bubble will always come out ROUND.



Image 127 - Bubbles

What Camera Settings Should I Use?

Unfortunately there is no golden camera setting for every bubble photography project. The setting will be dependent on the lens used and the amount of light there is when you are shooting.

However, as a start, we suggest using the below settings. You will

need to adjust it accordingly to obtain the outcome/exposure you are after -

- Aperture: f5.6 (You will typically find that the reflections on the bubble will be stronger if you use smaller apertures such as f9.0)
- Shutter Speed: 1/200 sec
- ISO: 200-400 (some cameras at ISO setting of 400 will be quite noisy/grainy so make sure you check the preview on your camera to see if it is acceptable first)
- It will be somewhat of an experiment and you may need to do this by trial and error, but if your photo is looking blurry you can either open up your aperture to let more light in. If it is still blurry, you could increase your shutter speed and then compensate by increasing your ISO.

Tutorial Steps

1. For the home-made solution, first create your bubble soap solution by adding water, dish washing liquid and glycerin together. For the pre-made solution option, add a few drops of glycerin into your pre-made bubble soap solution. Adding glycerin to the solution will help the bubble to last longer.
2. Mix well.
3. For the home-made option, you will want to bend your pipe cleaner to form a round wand at the top.
4. Dip your wand into the solution and start blowing!
5. Grab your camera and start composing your next masterpiece! Remember the photography tips from above.

Creative Ideas to Try

You can never get bored with photographing bubbles. There are just so many different things you can do with bubbles. Try the following creative ideas -

- Try composing your shot with a reflection on a bubble.
- Try composing your shot with it resting on the ground/grass.
- Try capturing the moment when the bubble pops.
- Try blowing bubbles inside bubbles.
- In freezing conditions during winter, try letting the bubble freeze. You will be wowed by the texture that this creates.

Abstract Oil and Water Idea Tutorial



Image 128 - Abstract oil and water

Shooting abstract photos of oil in water is a very simple project and can be done by beginners. This is the perfect indoor project for those rainy days. It does not require much setup and the great thing with this macro photography project is that all the equipment can be found in your house.

What is required?

- Camera + Lens (Macro or a Zoom – we used a 105mm Nikon Macro Lens)
- Tripod
- Coffee table with glass top *
- Lighting / Table lamp
- Glass dish (shallow)
- A jug of water
- Cooking oil
- A few A4 color papers OR colorful material (eg. Hand towel, table cloth, etc)

* If you do not have a glass top coffee table, you can remove the piece of glass from a photo frame. You can then prop up the corners of the piece of glass with books/cans/anything you can find. You could try stacking 2 cans for each corner.

Our setup looked a bit like this -



Image 129 - Basic setup

What Camera Settings Should I Use?

- For these kind of shots, we typically shoot in Aperture priority mode.
- Since you want to achieve a blurry/out of focus background, you would choose a fairly wide aperture. Start with the widest aperture your lens allow you to go to. For example $f/2.8$.
- As we have plenty of lighting in this situation, ensure that your ISO is as low as you can go. For example ISO100. This will ensure that there is minimal noise in your photo.

Tutorial Steps

1. Clean glass / pyrex dish and wipe dry
2. Clean the glass on the coffee table and wipe dry **OR**
3. If you are using the piece of glass from a photo frame, clean the glass and then prop each corner of the glass piece with a few books or cans
4. Place the glass dish on the glass top of the coffee table / propped up piece of glass
5. Place the A4 color papers **OR** colorful pattern material under the glass top of the coffee table / piece of glass. This will act as the background for your photos
6. Place the lighting / table lamp under the glass top of the coffee table / propped up piece of glass. Turn on the light.

This is should now light up the background material that you have selected

7. Setup tripod over the top of the glass dish
8. Mount camera onto the tripod and check that you can see the glass dish and the selected background
9. Pour a shallow layer of water into the glass dish
10. Add a table spoon or a few drops of cooking oil into the dish
11. Disturb the cooking oil until desired effect
12. Wait for the water and oil to settle
13. Aim and shoot on your camera. Ensure you take the photo with a remote or a timer to reduce camera shake.

Bubbles and Water Tutorial



Image 130 - Bubbles and water (Tsunami wave)

Shooting bubbles in water is very similar to the Oil in Water project that we shared earlier. It is very easy to produce and you can achieve very beautiful and mind numbing patterns. This is a very fun project and does not require much setup so it can definitely be done by a beginner or an advanced photographer. As always, all the equipment that you need for this project can be found in your house so happy hunting!

What is Required?

1. Camera + Lens (Macro or a Zoom – we used a 105mm Nikon Macro Lens)
2. Tripod
3. Coffee table with glass top *
4. Lighting / Table lamp
5. Glass dish (shallow)
6. Dish washing liquid (Detergent) / Soap Liquid
7. A jug of water
8. Drinking straw
9. A few A4 color papers OR colorful material (eg. Hand towel, table cloth, etc) – We actually used a dish drying cloth for this project (it was orange, blue and yellow in color).

* If you do not have a glass top coffee table, you can remove the piece of glass from a photo frame. You can then prop up the corners of the piece of glass with books/cans/anything you can find. You could try stacking 2 cans for each corner.

Our setup looked a bit like this –



Image 131 - Basic setup

What Camera Settings Should I Use?

- For these kind of shots, we typically shoot in Aperture priority mode.
- Since you want to achieve a blurry/out of focus background, you would choose a fairly wide aperture. Start with $f/5.6$. If you find that the bubbles are not in focus, you should dial in a smaller aperture eg. $f/9.0$ to increase the depth of field.
- As we have plenty of lighting in this situation, ensure that your ISO is as low as you can go. For example ISO100. This will ensure that there is minimal noise in your photo.

Tutorial Steps

1. Clean glass dish and wipe dry
2. Clean the glass on the coffee table and wipe dry **OR**
3. If you are using the piece of glass from a photo frame, clean the glass and then prop each corner of the glass piece with a few books or drink cans
4. Place the glass dish on the glass top of the coffee table / propped up piece of glass
5. Place the A4 color papers **OR** colorful pattern material under the glass top of the coffee table / piece of glass. This will act as the background for your photos
6. Place the lighting / table lamp under the glass top of the coffee table / propped up piece of glass. Turn on the light.

Make sure that this is not in the way of your shot. This is should now light up the background material that you have selected

7. Setup tripod over the top of the glass dish
8. Mount camera onto the tripod and check that you can see the glass dish and the selected background
9. Add a shallow layer of water into the glass dish
10. Add a few drops of dish washing liquid or soap liquid into the dish
11. Stir the dish washing liquid or soap liquid around to mix it all in
12. Insert straw into the water and blow to create your bubbles.
13. Have fun, aim and press the shutter button on your camera. Make sure you use a remote trigger or a timer to reduce camera shake.

Creative Ideas to Try

- Play around with different bubble sizes. Blow harder into the straw to get bigger bubbles. For smaller bubbles, blow lightly into the straw
- You can re-adjust the size of the bubble by piercing the bubble with your straw and blowing more into it
- Create layers of bubbles within bubbles by piercing the bubble and blowing into the water again.



Image 132 – Layers of bubbles

Bubbling Sliced Fruit in Water Tutorial



Image 133 - Bubbling sliced fruit

If you follow this tutorial, you are guaranteed to have a lot of fun! It involves taking a great close up of

What is Required?

- Camera
- Macro Lens
- Tripod (if possible). If you do not have a tripod, you can try propping your camera onto a flat surface.
- A spot that is nicely lit or use a table lamp.
- Glass vase that has a flat surface
- A bottle of sparkling water
- A fresh lemon - You will only need a slice. Make sure you choose one that's fleshy!
- Clothes line peg
- Background color / pattern paper or material

Our setup looked like this –

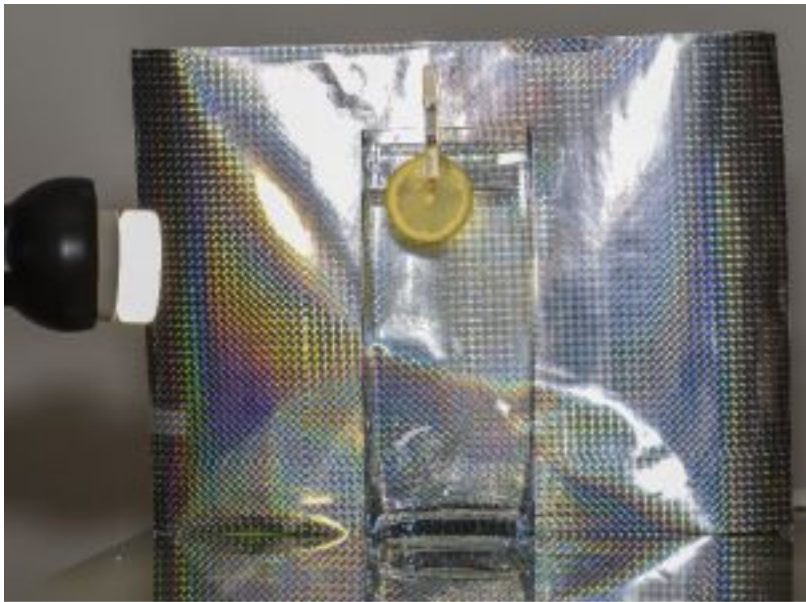


Image 134 - The Setup

What Camera Settings Should I Use?

- We typically shoot in Aperture priority mode.
- Given that you have good lighting and you want a sharp image, start with an aperture of f/9.0.
- Depending on the light again, you may have to adjust your ISO to suit accordingly. We will start with ISO200.

Tutorial Steps

1. Clean glass vase and wipe dry
2. Add background color / pattern paper behind the vase.
3. Cut a slice of lemon and use the clothes line peg to hold the lemon slice in place against the inside surface of the glass vase

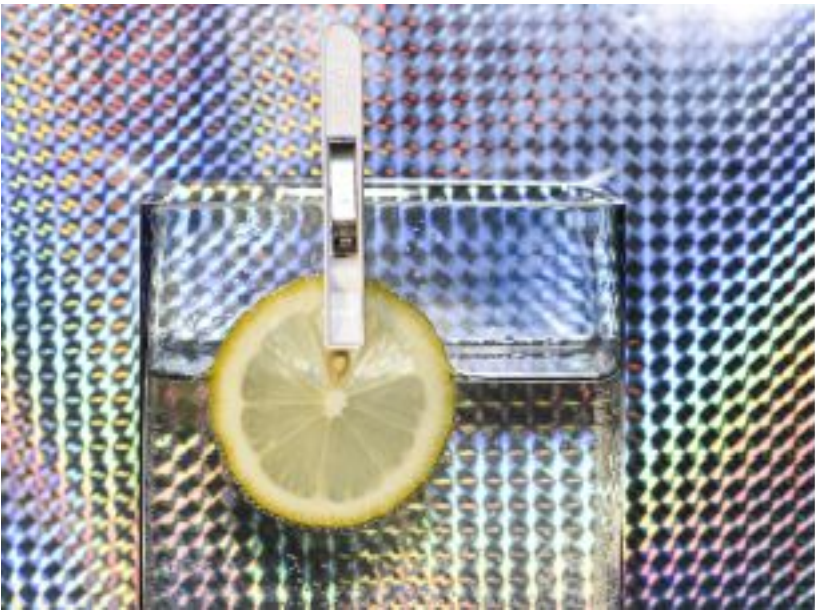


Image 135 - Pegging the Lemon Slice to Top of Vase

1. Add sparkling water until the slice of lemon is covered. If there is not enough bubbles, add a small teaspoon of bicarbonate soda to the water. It'll make it fizz and you'll have plenty of bubbles then!
2. Setup your camera and tripod in front of the vase
3. If there is not enough light, setup your light unit as well. We find that the light from a table lamp is sufficient. Set the light to point towards the vase from the side towards the background paper. You may need to move the light around and experiment with different directions so that you can achieve the exposure that you are after.
4. Focus your camera onto your lemon slice and take the shot!



Image 136 - Lemon Slice Shot 1



Image 137 - Lemon Slice Shot 2 (With Green Background)

Creative Ideas to Try

- Try different slices of fruit eg. Orange, lime, etc

Ink In Water Tutorial

Ink photography is another easy project and you will have a lot of fun trying it out. No two photos will be the same and you will be amazed by your photos.

What Is Required?

- Clear glass vase – Ideally one with a flat surface rather than rounded
- Water
- Ink (different colors) / Food coloring
- Eye Dropper
- White A4 paper
- Good lighting / Wireless flash
- Camera
- Tripod

Our setup looked like this –



Image 138 - The Setup

What Camera Settings Should I Use?

- We typically shoot in Aperture priority mode.
- We found that it's best to use a smaller aperture as you want all the ink to be in focus. So start off with f/9.0
- Depending on the lighting that you have, you may have to adjust your ISO. We would suggest to start with ISO200.
- We disabled the Auto Focus feature on the lens for this project. You can keep it on if you choose to, but sometimes you may find that the lens will focus on the vase rather than the ink. Manually focusing will give you more control. You

will find that you won't have much time to mess around with camera settings or the position of the camera when the ink enters the water. The pattern is constantly changing and if you are wanting a specific shot, you will most likely miss it if you are not paying attention to it.

Tutorial Steps

1. Clean glass vase and wipe dry
2. Fill glass vase with water. Fill it with water until it is $\frac{3}{4}$ full
3. Place the glass vase in a well-lit place OR
4. If you are not in a well-lit place, you should use an additional lighting unit to light up the glass vase. You will have to experiment and play around with the direction of the light. We usually have the light shining through the glass through the side of the vase.
5. Place the white A4 paper behind the vase. This is to help you achieve a white background when you take your photo. We had the vase next to a white wall with a flash lighting the background instead.
6. Setup your camera and tripod in front of the vase
7. If shooting in manual focus mode, you should set your focus before you start. A good way to set your focus is to dip a pencil into the middle of the vase. Then manually adjust your focus on your camera to ensure that the pencil is in focus. Remove the pencil when you are done. Remember the spot where the pencil was as this will be the spot that you will need to drop your ink / food coloring.



Image 139 - Set Focus

1. Get your eye dropper and suck in some ink or food coloring. You do not need that much - one or two drops will be more than sufficient.
2. Release a drop of ink / coloring into the water in the vase.
3. Start snapping away or wait for an interesting pattern to form! Remember to use a remote to trigger the camera to reduce camera shake.



Image 140 - Ink Photography

Creative Ideas to Try

- Try using with different colors or even using two colors at the same time
- Try using with more ink or food coloring to create a curtain of ink / food coloring.
- Use different types of solution – Paint makes really great textures and look very different
- If adventurous, you can also add a lighting gel in front of a

flash. These are inexpensive plastic sheets that comes in different colors. By firing off a flash with these lighting gels, it can add a different color to the background or create a completely different atmosphere and photo.

Dew Drops on Spider Web Tutorial



Image 141 - Dew drops on spider web

Spider webs are great macro photography subjects. What we love about spider webs is that they look even more stunning after a rainy day. The water drops on the spider web usually adds a new dimension to your macro photo! If there's no water droplets, you can always cheat a little and use a spray bottle to create your very own.

What Is Required?

- Camera and macro lens
- Tripod
- Remote trigger / Cable release
- Spray bottle with water

What Camera Settings Should I Use?

- We typically shoot in Aperture priority mode.
- The camera settings will be dependent on the amount of light in the area.
- Our 'home setting' that we always start off with are f/9.0 and ISO200. Make sure you check on the shutter speed as you don't want this to drop below 1 / focal length of your lens. For example if you are shooting at 100mm, you want to ensure that your shutter speed is faster than 1/100s.
- We will take a number of test shots and adjust the settings accordingly. If it is too dark, then we could open up the aperture or increase the ISO.

Tutorial Steps

1. Locate a spider web after a rainy day
2. If there no water droplets on the spider web, then use the spray bottle to spray some water droplets onto the spider web.

3. Setup camera and tripod in front of the spider web. Be careful not to disturb or break the spider web. Ensure that you are positioned so that you are parallel to the spider web. This is to ensure that the area that is being photographed will be in focus. Otherwise you will find that some areas of your spider web will be in focus and others areas will not be as a result of the depth of field.
4. Manually focus until the spider web is in focus. You can also use the Live View technique to help you to focus.
5. You can choose to introduce a background to your cob web. This could include color paper or even holding a leaf behind the spider web.
6. Take your photo with your remote shutter, timer or release cable and enjoy the stunning photo!

Water Drop Photography Tutorial

Water drops photography is another fun and interesting project that you can try in the comfort of your own home. Water drops photography is about taking a photo of the splash caused by a water droplet falling into water. It sounds easy but it sometimes boils down to the right timing and luck. What we like about this project is that it gives you the hands on experiencing on how you can freeze the motion of the water. More importantly, it gives you the opportunity to learn more about your camera and to play around with the settings on your camera.

What Is Required?

- Container for water – Paint tray (A dark color preferred eg. black – you want to avoid containers that will allow light through the sides as this will result in uneven lighting)
- Color or pattern paper (to be reflected onto the water)
- Small plastic bag filled with water to create the dripping drops (Alternatively you can manually create your drops with an eye dropper)
- Wireless Off-Camera flash (Alternatively you can have someone assisting you and manually triggering your flash unit OR if you do not have a flash, you could use a light source pointing towards your background)
- A small plastic bag to cover your flash unit to protect it from the water
- Tripod
- The holder for the plastic bag above your water tray (We just used the clothes drying rack)
- Towel (Just in case water gets onto your flash / camera!)
- Pen
- Needle to poke a hole in the plastic bag

Our setup looked like this –



Image 142 - The Setup

What Camera Settings Do I Use?

These are some of the initial settings that you should use. You may need to adjust it to fit your situation / setup. For example, if your photo is too dark, you may wish to adjust the power of your flash, or open up your aperture or increase your ISO.

Camera

- Manual mode
- Manual focus
- Aperture – $f/8.0$
- Shutter speed – $1/250$ s or faster
- ISO 200

Flash

- Power – $1/16$ or $1/32$

Tutorial Steps

1. Fill the container with water
2. Fill the small plastic bag with water and hang above the

container of water. We hanged the bag of water on a clothes drying rack above the paint tray.

3. Tape your color background paper behind the water container. You will want this to be angled towards the water in your container if possible.
4. Setup your camera and tripod
5. Poke a tiny hole into the small plastic bag to start your water drips
6. To ensure you get the right focus – Place a pen into the water where the drips are falling and use auto focus to focus onto the pen (or manually focus it yourself). This will help you achieve the correct focus. Turn your focus to manual focus once this has been completed.



Image 143 - Set Focus Point

1. Position your wireless off-camera flash towards the color background paper. The flash light should bounce off the background paper and onto the water. This will generate the reflection. A better reflection is achieved when we hand hold the flash unit at the top and in front of the background. You want to angle the flash downwards into the background paper. Additionally, you want to reduce the amount of lighting in the room – we shoot in a fairly dim lit room so that we get better reflections and avoid any rogue light reflections.
2. Be patient and as the water drips, start snapping! You will need to work on your timing and get into a rhythm when shooting these water droplets.



Image 144 - Water Droplet Frozen in Time

Creative Ideas to Try

- Try using different backgrounds to achieve interesting reflections
- Try adding color dye to the water
- Try dripping other types of liquid such as milk, colored milk, etc
- Try using two water droppers to achieve different pattern of splashes
- Many photographers also use a machine to create water droplet collisions.

Abstract Reflections in Water Droplets Tutorial



Image 145 - Abstract reflections

This is a fun macro photography idea that involves photographing abstract reflections in water droplets. We hope that it will be a fairly easy tutorial for you to follow. This simple project will require you to be creative!

What Is Required?

- Camera + Lens (We used a 105mm macro lens)
- Tripod
- Coffee table with glass top *
- Lighting / Table lamp
- A glass of water
- A material / cloth / paper with some nice patterns on it as background (We were somewhat inspired by the new 'Superman' movie so we found an old 'Superman' t-shirt.). This is the image that you want in your water droplet.
- RainX & cloth – RainX is commonly use on your car windscreens to repel water. This is the secret ingredient to achieve nice round water droplets.
- Water dropper pipette / eye dropper

* If you do not have a glass top coffee table, you can remove the piece of glass from a photo frame. You can then prop up the corners of the piece of glass with books/cans/anything you can find. You could try stacking 2 cans for each corner.

Our setup looked a bit like this –

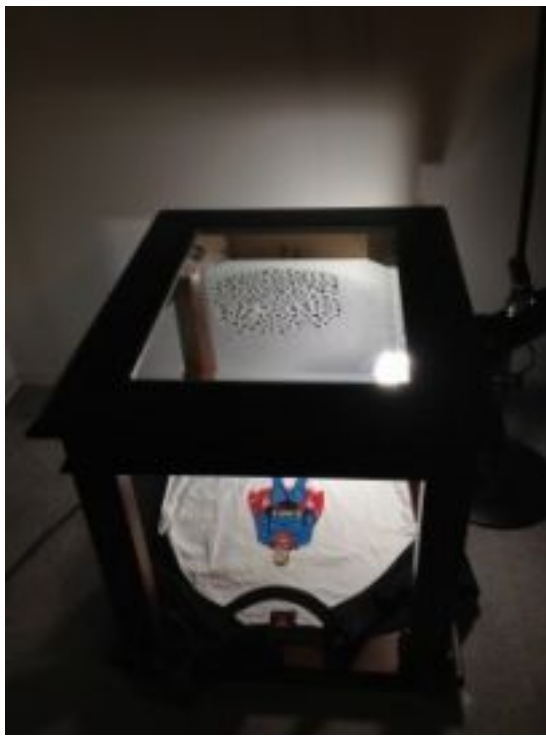


Image 146 - Basic setup

What Camera Settings to Use

- In these controlled environment, we shoot in Aperture priority mode.
- Depending on the amount of lighting that you have, you will need to experiment with your aperture and ISO settings to achieve a correct exposure. Start with $f/5.6$ and then take a test shot to see if the image is bright enough. If it is not, you will need to open up your aperture or increase ISO.
- Start with ISO 200.

Tutorial Steps

1. Clean the glass on the coffee table and wipe dry **OR**
2. If you are using the piece of glass from a photo frame, clean the glass and then prop each corner of the glass piece with a few books or cans
3. Place your background image under the glass top of the coffee table / piece of glass. This will act as the background and the reflected image for your photo. Remember that you will need to place your background image upside down. When the image is reflected by the water droplets, it will always be inverted. So for our superman background, we placed him upside down. Once reflected into the water

- droplets, he will be the right way up.
4. Place the lighting / table lamp on the side under the glass top of the coffee table / propped up piece of glass. Turn on the light. This is should now light up the background material that you have selected. The key is to ensure that the background image is completely lit up.
 5. Setup tripod close to the glass top.
 6. Mount camera onto the tripod and check that you can see the selected background through the glass top
 7. Apply some RainX onto a piece of cloth or paper towel and apply it onto the glass on the table top. This is a step that you should not miss as this will help to make your water bead which in turn helps you to get great looking water droplets and great reflections.

Here is an example of how it will look like if you do not apply RainX. You can see that the water is not beading at all and it looks like a pool of water instead –



Image 147 - Without RainX applied

1. Get a glass of water and use the dropper pipette / eye dropper and suck some water from your glass of water.
2. Drop the water droplets onto the coffee table glass (in whatever pattern you choose). Try creating different droplet sizes for fun!
3. By now, you should be able to see the reflection in your water droplets. You may need to adjust your background material to ensure that the reflection is positioned correctly. Remember you may also have to adjust how far (height) your background is from the coffee table glass.
4. All you have to do now is to aim and shoot on your camera. As always, ensure you take the photo with a remote or a timer to reduce camera shake.

Creative Ideas to Try

- Remember that you can be as creative as you want with this project. If you want your background to be more in focus, choose a small aperture setting (eg. f/22). If you don't want the background to be as defined or in focus use a larger aperture (f2.8). As always try all the different aperture settings. Playing around with different aperture settings here will help you learn about depth of field!
- If the water droplets look too mundane, try adding a mist of water over your glass by using a spray bottle. It adds a nice effect to the photo!
- Remember that RainX is the key to the water beading! If you don't have RainX laying around in your house, you can easily buy one from Walmart or online!

Water Droplet from Faucet Tutorial

By Nicki Lautemann



Image 148 - Water Droplet from Faucet

The camera can catch some things that the eyes can't see. This next tutorial will teach you another amazing way to take falling water droplets from the faucet / tap. It's so low tech that you won't believe it!

What Is Required?

- Camera and lens – Nicki used a Nikon D3100 with a 50mm lens mounted in reverse
- Colorful background with interesting patterns (eg. Scrapbooking paper, wrapping paper, colourful folder, notebook, artwork, a bag, fabric, a photo, etc)
- A protective sleeve for your background (not mandatory)
- Kitchen / Bathroom with a water tap / faucet
- A kitchen / bathroom with good lighting OR use a flash unit
- A towel

Nicki's setup looked like this –



Image 149 - Nicki's Setup

What Camera Settings Do I Use?

- Manual mode
- The lens aperture is stuck open at f5.6 as a result of the reverse lens technique
- Start with a shutter speed of 1/200s
- Start with a camera flash of 1/32
- ISO 100 or 200
- We hand held here but you can use a tripod

Tutorial Steps

1. Place the background image/material behind the water tap / faucet where the water will drip out of. You will need to position the background image upside down so that it is reflected in the correct position in the water drops. You may want to put your background material in a plastic sleeve to protect it from getting wet.
2. If you can, position your water tap / faucet in front of the

background material.

3. Turn the tap on and start with an extremely slow dribble
4. Focus manually and take the shot of the water dripping down.



Image 150- Water Drips

Creative Ideas to Try

- Don't forget to try different color / pattern material



Image 151 - Experiment with Different Backgrounds

- Move around and try different viewpoints of the water drops
- Once you get a feel for it, try playing around with the amount of water coming out of the tap / faucet. Try a slow dribble, a small steady stream, a full on stream, or turn it to spray and get a photo of lots of drops all at once!

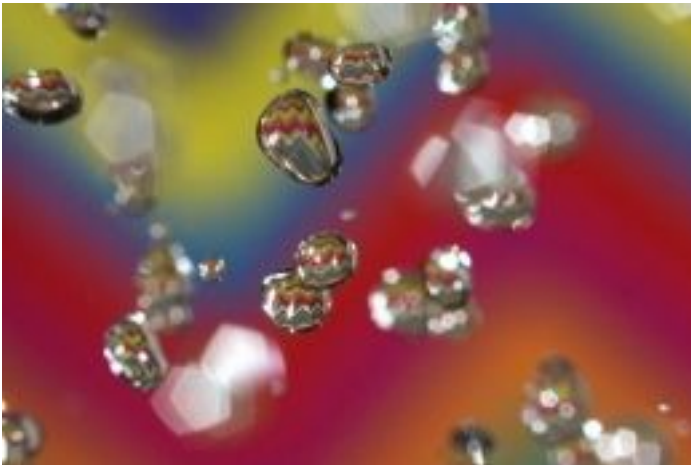


Image 152 - A Spray of Droplets

- By changing the amount of water coming through the faucet, the shape of the drops will change as well. So each photo will be uniquely different!

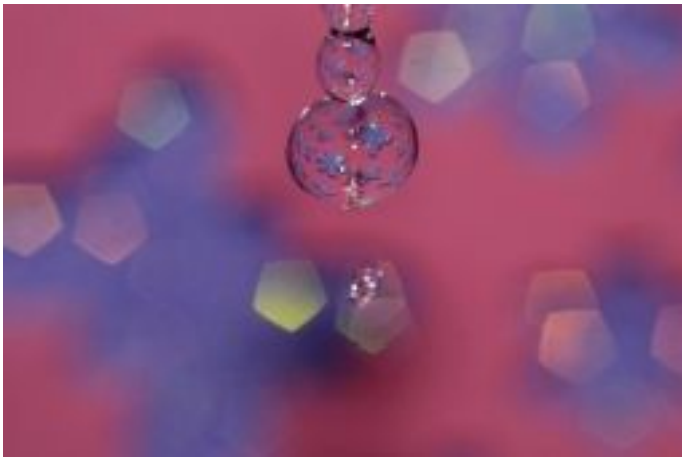


Image 153 - Water Droplets Come in Many Different Sizes and Shapes

21. Developing The Macro Photographer's Mindset

How to Become a Better Macro Photographer

People often tell us that we need to see the “Big Picture” to really appreciate life. As you may already know, there’s no better way to help you see the big picture than macro photography. By zooming in on small subjects or focusing on the smaller aspects of very large subjects, macro photographers are able to capture some of the most stunning photographs you will ever have the good fortune to see. However, macro photography is about a whole lot more than simply zooming in on your subject and snapping a quick photograph. We know that some people struggle with becoming good macro photographers. And that’s why we are sharing some of our experiences with you so that you can take your game to the next level...



Image 154 - Becoming a better macro photographer

Macro Photography Tip #1 – Patience is a Virtue

Every art form, whether it’s music, painting or photography, requires practitioners to exercise patience. This is even truer for people who wish to become skilled macro photographers. When you are shooting photographs of very small subjects, even the smallest light change or movement can quickly change what you thought was going to be the ideal shot. You must learn to be patient as you progress as a macro photographer. Yes, it’s frustrating when you blow a shot. But all of the things that test your patience will be well worth it when you begin to capture amazing photographs that people rave about!

Macro Photography Tip #2 – Change Your Perspective

If people learn anything from macro photography it is that you can't walk around with the same outlook/perspective that other people have. Over time you will need to learn to see things a bit differently. To a traditional photographer that bug crawling on a weed may not even register as a potential subject for a shoot, but macro photographers learn to open their eyes and their minds to the smaller things in life. You don't have to obsess over details, but you should learn to broaden your vision a bit to see the hundreds of potential subjects that most people would simply walk past without giving it a second thought.



Image 155 - Change your perspective

Macro Photography Tip #3 – Say Goodbye to Auto Focus

The rest of the world may rely on using the auto focus feature on their cameras, but if you're serious about pursuing macro photography as a hobby or as your passion in life then you must begin to experiment with manually focusing your camera. This may very well be the most difficult technical aspect that you'll have to learn, but it's good to start manually focusing on your subjects from day #1. Be prepared to do a lot of practicing to get good at using the manual focus on your camera. But all that practice will pay off when you learn to seamlessly capture photographs that are focused to perfection. And trust us; this really does happen sooner than you might think.

There you have it – our top 3 tips to help you get started on the path to becoming a great macro photographer. Be sure to get out there; exercising patience, broadening your perspective and manually focusing on all the amazing photography subjects that the rest of the world may not even notice – until they see your upcoming macro photographs, that is...

Your First 10,000 Photographs are your Worst...

You'll often hear the standard words of wisdom when you start any new endeavor in life – “The Journey of a thousand miles begins with the first step.” And while that may be true, it isn't always the most encouraging of statements when you're looking to learn or accomplish something new. In photography we have our own words of wisdom: “Your first 10,000 photographs are your worst.” Not exactly warm and fuzzy advice, is it? “If you have to get thousands upon thousands of photographs under your belt before you get good, then why bother?” is what some might say. Don't give up, though, as you're about to find out, the lessons you learn taking those first 10,000 or so photographs are going to put you on the path to taking some extraordinary shots in the very near future!

Don't believe us? Read on to find out how those early efforts contribute to you becoming a much better photographer...



Image 156 - Your first 10,000 photos are your worst

You Walk Before You Run

If you've ever spent any time exercising, you know that you must warm up prior to engaging in more advance movements. If you don't you wind up hurting yourself. The same principle applies to photography. Your first 10,000 photographs are your "warm-up" period. While you won't get hurt by skipping over this introductory phase, your photograph quality will most certainly suffer.

Part of what you'll learn during your early days as a serious photographer is simply how to best physically engage your camera. Just as a musician must take time to "break in" even a world-class instrument, you must take time to get used to your camera. What does this button do? How do I change the flash settings? Questions like these, and dozens of others, are answered as you "warm-up" as a photographer and get better acquainted with the equipment you will use down the road.

It's never easy to go slow, but that's just what you should do when you're first starting out. When your camera eventually becomes an extension of you – as it will with a bit of practice – you'll realize just how

important it was to spend time easing into becoming a more experienced photographer.



Image 157 - Practice makes perfect...

Developing Your Eye

As a photographer, you probably want to share your vision with the world. Everyone who picks up a camera wants to capture photographs that represent the way that they see a fleeting moment in time. Few, however, ever put in the time and effort it takes to develop their own perspective as a photographer. If you can put in the effort to grind out those first 10,000 or so photographs, you'll slowly but surely develop your own, unique perspective. And that perspective will permeate all of the photographs that you take for many years to come.

Think about how many iconic photographs were taken using cameras that pale in comparison with what we have available to us today... This proves that it is a photographer's perspective – or eye – that really makes a picture that is, “worth a thousand words.” By putting in some grunt work early on, and experimenting with different types of photography styles, you'll develop your unique perspective. Later

on, when you look back at some of your early photographs, you may cringe a bit, but you'll see that your skills were a work in progress that ultimately led to you developing a unique, unforgettable photography style.

It Doesn't Happen Overnight

Every new photographer will struggle with the fact that most of his/her photographs don't come out looking perfect. However, as you've read, perfection doesn't happen in a single day. You will put in your time snapping what may very well be some horrendous photographs. But as you get used to using your equipment and start to develop your personal perspective and style, you'll soon be capturing some shots so good that you may even amaze yourself! Keep on working hard and clicking away; you're getting better as a photographer with every photograph you take!

Should You Print Your Digital Macro Photos?

We wanted to dedicate a small section of this book to the topic of printing your digital photos. Nowadays, people are not doing enough of it! With more and more people using digital cameras, it is fast becoming more convenient to stash your digital photos away onto an external hard drive or on a CD/DVD.

When it comes to printing your photos, there are two camps in the world of photography: Those for printing digital photographs on a regular basis and those against doing so. You may have wondered whether it was worth the time, effort and expense involved to print your photographs, or whether you should simply store all your work away on digital drives or other media.

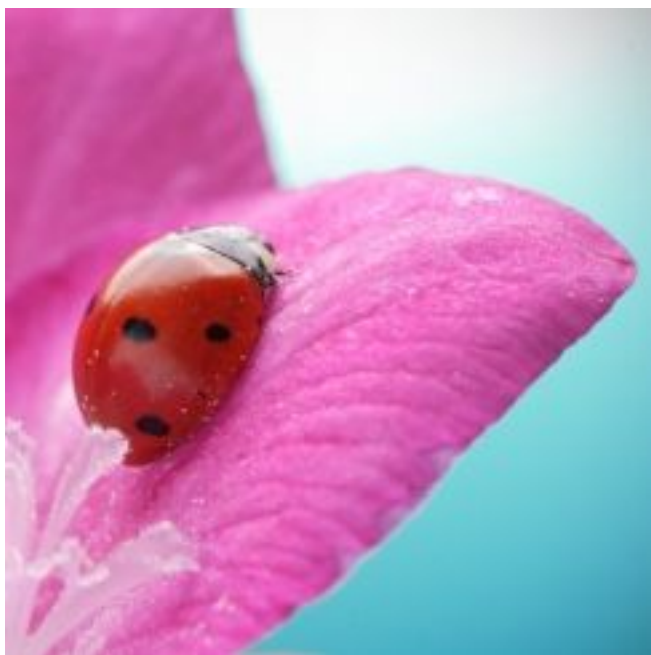


Image 158 - Should you print your photos?

The Case for Printing your Photos

Photographs, as we've so often said in the past, are a way of preserving a once-in-a-lifetime moment. As

such, you probably have gigabyte after gigabyte on your hard drive of moments that you've painstakingly captured with your DSLR. From family photographs to macro photographs, you probably have invested a lot of blood, sweat and tears in making sure that you keep all your best shots saved for future viewing. However, we know that this isn't a perfect world, and you may want to consider making hard copies of your best stuff.

Here's the deal – digital media can fail. Hard drives can get corrupted. And computers, discs, etc... can be stolen. If one of these worst-case-scenarios were to happen to you, it's possible that you could lose some – even all – of your digital photographs. With that being said, having hardcopies may very well be the only way that you could ensure that your photographic memories were, indeed, safe and well protected.

Additionally, when you do put in the effort to print your photos, you often get a chance to see your work in a whole new light. Subtle shades and nuances sometimes look better on photographic paper than they do on a computer or tablet screen. You may even want to keep a photo album on hand that features your favorite shots from over the years. You can compare similar photographs from different points in time, to see how much you are improving. Many photographers use such hard copy collections to assess their skills and ultimately improve their photographic chops.

The Case against Printing your Photos

People who don't like to print digital photographs regularly say that the price of printing is simply too high. These folks believe that the money you spend on printing photographs over the years could be saved up

and spent on better things, like higher-end cameras or other gear. And while this may be true, you must remember that if you don't print your photographs off, there's a chance that you could wind up losing them for good. However, as much as we like to stay protected from data loss, saving a back-up copy to a cloud drive or some off-site data storage site could prevent that from happening. So if money is very tight, you may find that skipping on the printing is the more fiscal solution.

By throwing our hat in the ring with regard to the whole printing versus not printing argument, we hope that we have given you some food for thought. The ultimate decision lies with you. If you do like the idea of preserving your memories and improving your photographic skills, by all means start printing more of your digital photographs. However, if you just can't deal with the extra expense and hassle of printing, you should at the very least keep a separate, off-site digital copy of your best photographs to be on the safe side.

Unique Ways to Print Your Macro Photos

If you are not a fan of the traditional photo prints, there are so many other new and unique ways to print your photos. Here are some of our favorite types of photo prints that you may like -

Custom Photo Books

Custom photo books come in a variety of sizes and can be made with a range of different covers and materials (eg. paper). When printing your photos into a photo book, it is a fairly easy process. You can do this online easily. First, you select the photos that you would like to use. Then you will be provided with the capability to design each of the individual pages. You can move

them, resize, add text, etc to every page.

Custom Canvas Prints

Printing on canvas is one of our favorite formats. These canvases are usually stretched across a wooden frame and can come in a variety of sizes. Printing your photo onto a canvas is simple and the hard part is usually deciding on the photo that you want to print onto the canvas. All you need to do to print onto a canvas is to select and upload your image, make any relevant edits (resize, re-position your image, enhance your image with some pre-created filters, add text, etc). Then all you need to do is sit patiently at home for your new custom canvas to be delivered right to your door step!

Glass / Acrylic Photo Print

One of our other favorite ways to print photos is to create a Glass / Acrylic photo print. It amazes us every time we see our photo printed onto the glass / acrylic. The photo looks amazing and the glass adds a bit of class to the photo. It's perfect for any room. Just be careful when you do receive your custom photo glass print. Depending on how big the print is, it could get quite heavy.

22. Final Words – Bonus

Photography Resources

Well done on reaching the end of the book! While this may be the end, it is only the beginning of your macro photography journey. We hope that you have been inspired and that you have learnt a thing or two about macro photography and close-up photography. Don't forget that macro photography is a life long journey of learning. So make sure you keep learning and practicing everything that you have learnt from this book. That is the only way to improve!

Bonus Material

We have many more photography tips, tutorials and ideas (articles and videos) which we would love to share with you. It was impossible for us to cover everything in this book!

To claim your bonus, go to the bonus page and tell us where you would like us to send the bonus to –

<http://www.seeinginmacro.com/ClaimBonus>

Other Additional Resources

As always, we would love to see some of your photos and if you would like to be updated with more photography tips, tricks and tutorials, please come and join the rest of the Seeing in Macro community over at –

Seeing in Macro Website

You can read all the latest macro photography tips and tricks here -

<http://www.seeinginmacro.com>

Seeing in Macro Facebook Community

Share your macro photos with us on our Facebook page and join in on all the fun with the rest of the Seeing in Macro community!

<http://www.facebook.com/SeeingInMacro>

We wish you much success in your endeavor to become a skilled macro photographer. Along the way you're sure to sharpen your skills and to become a more patient person too. With those kinds of benefits one might say that everyone should get involved in macro photography; it just might make the world a better place....

23. Credits

This book would not have been possible without the help and contribution of everyone below. Thank you for all your support and contribution.

Special thanks to the following Seeing in Macro contributors -

Annette Osborn (Image 76, 114-116), Eric Vetting (Image 36, 79-90) & Nicki Lautemann (Image 148-153)

If you enjoyed the photos that have been featured in this book, please continue to support these people on Shutterstock -

Cathy Keifer (Cover image), Wong Yu Liang (Image 1), kingfisher (Image 2), johnnyraff (Image 5), 06photo (Image 8), Dean Pennala (Image 10), Niuyang_sn (Image 12), Kasza (Image 13), Judy Kennamer (Image 15), marigo20 (Image 16), Irakli Shavgulidze (Image 17), Roger Meerts (Image 18), fotodelray (Image 19), Decha Thapanya (Image 20), Ra'id Khalil (Image 21), irin-k (Image 22), KAMONRAT (Image 23), Martin Valigursky (Image 24), vovan (Image 25), beboy (Image 26), Geanina Bechea (Image 30), Pavel L Photo and Video (Image 31), nito (Image 32), vetkit (Image 33), gorbela (Image 35), Thomas M Perkins (Image 44), chris2766 (Image 45), Tischenko Irina (Image 73), Pedro Nogueira (Image 78), suzz (Image 91), Miroslav Hlavko (Image 92), Bezuglaya Tatiana (Image 93), Tomatito (Image 94), anuphadit (Image 95), yumofoto (Image 96), Tomatito (Image 97), Nicola Dal Zotto (Image 98), Hue Chee Kong (Image 99), Kovalchuk Oleksandr (Image 100), Antoine Beyeler (Image 101), Krivosheev Vitaly (Image 102), Mariana Ruiz (Image 103), Ingrid Prats (Image 110), saied shahin kiya (Image 111), Galushko Sergey (Image 112), Kuttelvaserova Stuchelova (Image 113), tonyz20 (Image 117), Tomatito (Image 118), Claudio Baldini (Image 119), Juraj Kovac (Image 120), Fotonium (Image 121), Nicky Rhodes (Image 122), O.Bellini (Image 123), Bob Orsillo (Image 124), AlexeiLogvinovich (Image 125), PanicAttack (Image 126), Nicholas Toh (Image 127), Yellowj (Image 133), Lauryn Kay Photography (Image 141), Shulevskyy Volodymyr (Image 154), Shico (Image 155), Yellowj (Image 156), KateChris (Image 157), Chepko Danil Vitalevich (Image 158)